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THE MILITARY OPINIONS

OF

GENERAL SIR JOHN FOX BURGOYNE,

BART., G.C.B.

COLLECTED AND EDITED BY

CAPTAIN THE HON^BLE. GEORGE WROTTESLEY,

ROYAL ENGINEERS, AND AIDE-DE-CAMP.

PART I. NATIONAL DEFENCES.

II. THE WAR IN THE BALTIC AND CRIMEA.

III. MILITARY MAXIMS, ETC.

"PARVI SUNT FORIS ARMA, NISI EST CONSILIUM DOMI."

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PREFACE.

BELIEVING that much which has been written by Sir John Burgoyne would be found of general interest, I have obtained his permission to publish the following pages. Their value consists in the essentially practical nature of the suggestions and opinions contained in them, which are founded, in all cases, on actual experience,—the result of an active career of half a century, passed in responsible military commands, in nearly every quarter of the globe.

When Sir John Burgoyne was appointed to the office of Inspector-General of Fortifications in 1845, he was immediately struck with the defective state of our military establishments, and the imminent danger of Invasion to which the country might be exposed in the event of a rupture with France. He consequently wrote the letter which appears in the first pages of this Work. It was in answer to the representations made by Sir John Burgoyne on this occasion, that the Duke of Wellington wrote the remarkable letter which, on its publication shortly afterwards, created so great a sensation. As the specific facts adverted to in this communication no longer remain the same, I am enabled to publish it without impropriety, and it is of considerable interest at the present moment, as although the circumstances are changed to some extent, and our defences are no longer in the very defective state mentioned

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in it, yet the general reasoning holds good to the present time, and may tend to awaken the people of England to the imminent danger of the crisis through which they have passed; and if nations ever gain experience by the past, it may tend to prevent our defences from falling again into the condition in which they were found by Sir John Burgoyne in 1845.

Several of the notes in the Third Part of the Work were written during the Peninsular War; but as those which I have selected for publication are general in their character, they are applicable to all periods. They consist, in fact, of *principles*, and not of *rules*, and may, therefore be considered as immutable. I should mention, as regards these Peninsular notes, that they were consulted by Sir John Jones and Sir Charles Pasley, before the publication of their respective works; and that this will account for any coincidence in language or treatment of subjects which may be found with those writers.

Many other papers might have been added to the collection, but they were chiefly on specific subjects, and more or less of a confidential character; and it has been a leading object with me, to insert nothing that was not general in its application and purport.

THE EDITOR.

London, June 7, 1859.

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NATIONAL DEFENCES.

[1] OBSERVATIONS ON THE POSSIBLE RESULTS OF A WAR WITH FRANCE, UNDER OUR PRESENT SYSTEM OF MILITARY PREPARATION.

A REVIEW of the comparative state of preparation for war between France and England, will show that a conflict could not be entered upon by the latter, without risk of invasion and the most frightful disasters.

There are two ways of resisting an invasion; one by our navy preventing the landing of the enemy altogether, and the other by opposing them by our land forces on shore.

It is the latter which I propose to consider, entering so far only on the naval question as to advert to a possibility of its failing in its object, and thus forcing us back on the other as our only resource.

[1] This first paper was written in the latter end of 1846, and refers to the circumstances of that period; otherwise it could not, of course, be published; but, although the *facts* are different, in many respects, much of the *reasoning* is applicable to the present time. It was in reference to this paper, that the Duke of Wellington wrote the letter which created so much sensation on its publication in 1847. —EDITOR.

Englishmen are very apt to delude themselves with the idea of the thousands or hundreds of thousands of enthusiastic men, who would spring to arms to repel an invading foe.

But this is a complete fallacy; suppose they did so rise, they would sink to nothing before the pressure of an organized disciplined army.

Such effects may have succeeded in a poor, wild, and strong country of great extent, and after a long contest; but never has, nor ever will, in one of plains covered with large open rich towns.

Let us consider, then, what are our real *bonâ fide* means of defence.

France has always 100,000 or 150,000 soldiers available for offensive operations without compromising the security of any of her possessions or establishments, and could raise, equip, and organize increasing numbers much more rapidly than England.

There may be in Great Britain and Ireland, perhaps, 30,000 regular troops, including infantry and cavalry,[1] of which at least from 20,000 to 25,000 must remain for the protection of Ireland, and of garrisons, &c., leaving not more than from 5,000 to 10,000 disposable for an emergency to oppose the efforts of more than ten times their number.

[1] A very small number of marines, if any, can be calculated on as available on shore at such a time. These numbers are given on conjecture, and require correction; but if understated, cannot be so much so as materially to affect the argument.

With regard to the number of troops for Ireland, no course of events or of circumstances can preclude for the next fifty or hundred years the necessity for the presence of a large force in that country at such a period.

A maxim has been thoroughly inculcated into the minds of the great bulk of the people there, that "*Ireland's hope*," as it is called, "*and time for energetic proceedings is to be found in England's difficulties*;" and such an extreme subversion of all existing order of government is sought for as could never be conceded by statesmen of even the most liberal political principles; the *arrière pensée* of the Irish people can never be met, and it will require very many years before it can be so far moderated by the most conciliatory measures as to obtain a thorough amalgamation of feelings of identical interests with those of Great Britain.

No man of sense will suppose that a French army is to be despised; on the contrary, it is notoriously among the finest and most efficient in Europe, and the greatest efforts of our best soldiers, united to the talents of our most distinguished generals, have been required to enable us to triumph over it.

We may freely admit that there is something in the energies and organization of the British troops that renders them superior, but this can only compensate for a moderate inequality of numbers under generals of equal capabilities, and the com-

parison will only hold good with the *regulars*,[1] for there cannot be a doubt but that the militia, even in their best state, would be totally unequal to cope with French troops of the line, unless supported by about double their numbers of regulars; the confidence they would derive from such support, would give them a degree of energy and decision which would render them, probably, or nearly, on an absolute equality with the others in the *day of battle.*

They would, however, require a longer apprenticeship to render them equally competent for other services.

Fencibles, yeomanry, and volunteers, &c., would be still less to be relied on, and could not at all be brought into the field except by very slow degrees, and under most favorable circumstances of superiority of numbers.

It is not meant by this reasoning to reject such auxiliaries altogether; on the contrary, they would be of the greatest value in fortifications and posts, and for a variety of escorts, guards, and numerous duties requiring an armed force, but they would be of no service in the field to oppose invasion by a powerful French army, with the exception of the militia, and even they would require not less

[1] This opinion and the subsequent one as to the value of the yeomanry, volunteers, &c., will shock many, and be disputed by some; but I appeal to military men of the highest authority and experience, whether there can be a doubt of its being correct.

than six months' or a year's organization in addition to the support above described.

In comparing the qualities of the respective forces, we cannot shut our eyes to the fact, that after a long peace the French officers will be found to have a superior knowledge of their profession to the English,—not in exercise, drill, or ordinary parade business, or management of their soldiers, and decidedly not in courage or energy, but in all that is generally comprehended as the art of war, and in their duties in the field according to their respective ranks.

It is unnecessary here to enter upon the causes of this superiority, but they could be easily explained.

The French have also a more permanent organization for the field of all the necessary departments attendant upon armies, which in the British service have to be created by slow degrees, at every war, until a continued campaign, under very able direction, and that alone, brings them into an efficient state.

This will be clearly illustrated by referring to the complaints of Sir John Moore, and, at early periods, of the Duke of Wellington, and it was only after five years constant campaigning that the Duke was enabled, in allusion to the organization and state of his army, to say emphatically, "I could have done any thing with that army."

It may be supposed that the lessons there ac-

quired must be now retained, but that is not the case. Some departments were broken up altogether after the peace,[1] others were shorn of their campaigning equipments, so that little remains to the good but the reminiscences of the surviving officers, after an interval of thirty years, and a few scattered details in military publications; there is therefore great reason to fear that they would for some time be in a very inefficient state.

Another essential matter for consideration will be our available provision of warlike implements, ammunition, and military stores in general. Nothing can be more unsatisfactory than the state of our arsenals in this respect.

Efforts have been made to maintain a certain provision for the navy, and, it is hoped, with effect; but that for the army has been almost entirely neglected.

It is believed that there is not in the whole British Islands a sufficiency of field artillery for the equipment of an army of 20,000 men, without admitting of any reserve whatever; and the amount of small arms particularly,[2] of a good description, is also, as I believe, quite unequal to any state of war; and of minor stores there is a great if not a total deficiency.

It is not known what may be the case in France,

[1] Such as Commissariat, Engineers, &c.

[2] The most serious difficulties were felt towards the close of the last wars with France, for walnut wood for musket stocks (the only material applicable), the price having risen from between 2*s*.

but it is hardly to be supposed that *two* civilized nations would be so improvident.

But even if it should be so, the consequences in this view of the case would not be so serious, because with them it would only lead to the postponement of an enterprise, while, with us, the impulse being given by the enemy *must* be resisted.

To add to this defective condition, we are all but absolutely without that useful auxiliary in defensive warfare, namely, fortresses.

Our dockyards alone have a semblance of being fortified, but the works are so imperfect that not one of them is at this time pronounced in the formal reports of the engineers to be secure, even against a *coup de main.*

This subject, however, might be more appropriately discussed in detail in a separate paper,—it is here sufficient to allude to it generally.

Thus a comparison of the land service and forces shows that France could in a *very few* weeks from her first preparation, by partial movements scarcely to be observed, collect from 100,000 to 150,000 troops on the shores of the Channel, within a few hours' sail of the British coast, and where every

and 3*s.* per stock to 8*s.* and 10*s.*; and this want will be still more felt at any renewed hostilities, the walnut tree plantations in England having been exhausted by the then great demand, and great difficulties being anticipated in getting supplies from abroad; it is worthy of notice that the French on finding out that we were in the habit of providing for this deficiency from their country, have actually laid a prohibition on the export of that species of wood.

coaster or large fishery vessel, aided by steamers, would be an efficient transport; while England would have neither fortifications nor troops, nor means of equipment for a force equal to cope with even one fourth of that number.

The next question then is, what measures could be adopted on the war breaking out, or on its being threatened?

Threatened it may be said to be always, if we may judge by the tone constantly maintained by a very large and influential body in France, who are aware of the stake for which they may contend.

The experience of late years, however, would seem to indicate, that under far more than ordinary threatening, and when great apprehensions of attack might reasonably be entertained, no increased efforts were to be made for our security; from which we must assume, that very probably war will be declared, or very nearly so, before we shall *commence* our means of defence.

One excuse for this apathy may be, that in such a fearful state of things it may, perhaps, be considered a measure of policy not to give indications of preparations for war, when any angry discussions take place, because they might tend to inflame animosity, and urge on hostilities which it must be so deeply our interest to avoid.

On the actual breaking out of war then, as it would appear that our preparations are not to be commenced till then, what are to be our measures?

First, to set to work numerous manufactories in a hurried manner to prepare arms and equipments, which will no doubt be rapidly produced, but of course at a great cost, and generally incomplete and very imperfect of their kind.

The main point, however, will be to get soldiers; recruiting for cavalry, infantry, and artillery will be urged on; but the greatest efforts, with high bounties and all kinds of extra means, can hardly be expected to produce more than 20,000 men[1] in the first year, and those by degrees, so that it must take from six to eighteen months before even that small number could be brought into the field, and then as very young soldiers.

And here it must be remembered, that at this very period, there will be the most pressing demands for our colonies, which are now on a low peace establishment;[2] an addition of 20,000 men, (and they *must* be of the line) would scarcely put them (*exclusive* of our North American provinces) in a state to be secure from the insults of a moderate armament.

If, therefore, the urgency of the case requires all the new raised means to be retained for our safety at home, the risk will be very great of losing many of our most valuable stations abroad.

[1] It is to be apprehended that this number is greatly overstated.

[2] Since the extension of steam navigation the Channel Islands will require a far greater degree of protection than in former wars.

The next resource will be, calling out the militia, which will produce, say 40,000 men;[1] they will be raised comparatively soon, because the service is compulsory; but six or nine months will find them very imperfect, even as militia, who, as before argued, must be deemed inferior troops at best, without great support from regulars.

Besides these forces there will probably be enrolled large bodies of volunteers, who will be collected and equipped by slow degrees, and can only be then considered as irregulars; extremely useful for many services, but *essentially irregulars.*

To return to the raising of regular troops of the line; we may call to mind what efforts were required to obtain men at the period of the revolutionary war, even when the national enthusiasm was at its greatest height.

Large bounties, rank given to men of local interest to raise regiments; foreign corps of all kinds,[2] put together in a way that, from want of amalgamation among officers and men, and of nationality, led to their being despised by us; and by a natural reaction, to their serving with reluctance and listlessness, to say the least of it, so as to be a great failure in all cases.

[1] This number is stated on conjecture; at the latter end of the war with France the militia was increased to a much larger amount.

[2] The Hanoverians are of course not included in this description, their service being for their own sovereign and country, and their high military qualities rendered them first-rate troops.

There can be little doubt about the means of transport to be found for conveying a very large force across the Channel from the many ports, large and small, that are not more than from twelve to twenty-four hours' sail of our shore; and which, under a good system of organization, with the help of steam, could have their movements perfectly combined.

The fact is well known (and by no one better than by the Duke of Wellington) of the facility with which, by perfection of arrangement, and by frequent practice, at the period of the threatened invasion by Buonaparte in 1804, it was found that a very large force of cavalry and artillery as well as infantry could be embarked in the one port of Boulogne, and got out of the harbour; and there is every reason to believe that had Napoleon's plan succeeded of obtaining a *temporary naval* command of the Channel (three weeks being the time on which he calculated), he would have established his 100,000 men in England, with which (notwithstanding the great efforts made at the time) we had no force at all equal to cope.

That there would be difficulties and chances of mistakes and misfortunes in the attempt cannot be doubted, but it would be unworthy of such a nation as Great Britain to rely for its safety on such contingencies.

I have thus considered the relative means of attack and defence, independent of the naval re-

sources on either side; and have shown, as I think, that if the Channel were free, we have no means of defence to oppose to those of attack, nor are likely to have for perhaps two or three years after it is necessary; and I do not see, taking proposition by proposition, as above stated, how this can be disputed.

I come, therefore, now to the matter which will be the subject of pride and triumph to those who are more sanguine, namely, the relative power of our fleets and cruisers, which we are thus brought to confess are to constitute our *only* means of protection; and I am willing to hope that they would be effectual for that purpose, more particularly as the Government could not be ignorant of the *vital* importance of straining every nerve to compensate by that force for the total neglect of the other.

I am not prepared nor capable of entering into a discussion as to the probable relative forces, or principles of operation that might lead to the possible chance of a temporary superiority of the French in the Channel; it is for naval men well acquainted with the maritime resources and capabilities, and the means of action of each party, to treat in detail on that question; but there are some points that strike me as tending to remove that absolute certainty of success which would justify our being satisfied to trust to it exclusively.

Even though each point may be contested singly, they surely show in the aggregate a *possibility* of a

partial success on the part of the French for the purpose of invasion.

1. The complaints of many able naval men against the construction of our ships, and of many of our measures of preparation, implying of course a fear, even if not a great one, of a superiority in our enemies, and of its natural results. An able pamphlet by Captain the Hon. —— Plunkett shows in the strongest manner the perfect possibility of such superiority.

2. Whatever may be the present maritime force of the French, it is certain that the Prince de Joinville is the organ of a large proportion of the French nation in calling loudly for great efforts to be made for its considerable augmentation; and the fine ports and conveniences possessed by France, her prosperity and national wealth, will enable her at any time to raise a very formidable naval force.

It is not to be denied that ours may and must more than keep pace with it, still there will be a power on the other side ready to take advantage of any favourable circumstances.

3. Independent of the number of ships, their rates and equipments, that Great Britain may have ready on the breaking out of a war, the difficulty of procuring seamen for them is generally acknowledged; and it may be a question whether in that respect the laws of conscription would not give the French a great advantage in point of numbers for manning their ships rapidly; and the greater the

number of these, the greater would be their advantage in this respect, because their compulsory enlistment would raise any number of men, while with us the difficulty would increase with that of the force, unless the system of impressment were renewed, a system that would be vehemently opposed, and is of doubtful success, and more than doubtful policy.

4. Not only would there be this heavy demand for manning our fleets,[1] but another contemplated principle of defence by block-ships, or large floating steam-batteries, would still raise another and a heavy demand for seamen and for sea equipments.

5. Although in steamers we should probably be generally far stronger, numerically, than the French, by engaging vessels from those now employed in passengers and trade, still the application of the power of steam may be of great service to France, to carry any specific object, and it is not impossible that they might have particular steamer men-of-war superior to any of ours, as that force will depend more upon mechanical contrivance and modes of arming than on seamanship, in which therefore they might have a better chance of rivalling us.

6. During the French revolutionary war, when

[1] As the active seagoing fleets would be of primary importance, and first to be provided for, it may reasonably be expected that these block-ships would hardly ever arrive at being manned at all, and consequently might not be forthcoming, and on that account it will be desirable to prepare by land batteries to dispense as much as possible with the necessity for them.

we had won battle after battle at sea, and our fleets were triumphant, and far more numerous than those of France, it was found impossible to confine the remnants of the French fleets to their ports by blockade, and the effects of steamers will render it far more difficult now to maintain *close* blockades than at that time; for though we may in the aggregate be very much stronger in steamers than the French, we cannot be so strong off each port as may be required to oppose the resources temporarily taken up for occasional efforts at those ports. A fleet, then, of even the most powerful ships, if maintaining a close station, might find itself under circumstances that would afford opportunities for being subjected to great annoyance, if not to disasters; nor will it be easy, it is apprehended, to keep one or two cruisers off the ports, as in old times, to watch the motions of the fleets within.

7. Independent of what is required of our navy to watch the enemy's fleets in their principal ports, we must have squadrons of more or less strength at our distant possessions, any of which may be attacked; thus a very superior force will be required by the British for this dispersion, and the French would have the great military advantage of being comparatively concentrated, while our force is greatly dispersed.

8. As it must necessarily be our system to have fleets out to watch those in the French ports, those

fleets will be subjected to all the wear and tear of being at sea, while their opponents are quiet and safe in harbour. It may be supposed that the superior skill thus acquired by our seamen will more than compensate for this disadvantage, but it exposes us to all the contingencies of being at sea, the necessity of occasionally sending in vessels to refit, and other circumstances that tend to weaken a fleet.

9. This state of affairs would, it is submitted, give possible opportunities to the enemy for successful manœuvres. When a fleet leaves a port unobserved by our blockade force, as has frequently occurred, there are often great doubts as to its destination and objects. At one time, on such an occasion, Lord Nelson sailed to the West Indies in search of a fleet that was quietly going up the Mediterranean.

When Buonaparte went to Egypt, in 1800, Lord Nelson divined his intention aright, and made sail for that country; but being in advance of the French fleet (which had been delayed at Malta), he imagined that he was in error, and in returning passed it unobserved, and only subsequently ascertained the truth, and returned once more to Egypt to win the battle of the Nile.

These instances prove that even an inferior naval force may gain certain periods of a free course.

Suppose, then, that the French have fleets of any given numbers of sail of the line at Toulon, at

Brest, and at Cherbourg, and we have an equal force off each port to watch them; the largest fleet being, say at Toulon, take a favorable opportunity to steal out and sail direct for Brest, our squadron in the Mediterranean not being so sure of its movements as to hurry direct after them.

When at Brest, it will at once drive off our very inferior force there, and be joined by its own squadron, and so on join that at Cherbourg; endeavouring to manœuvre to gain with such superiority of force some great advantage, or at least to prevent a junction between our Channel and Mediterranean squadrons, and at all events obtain a short temporary command in the Channel to forward the invasion, for which probably one week might be sufficient.

It was some manœuvre of this kind that was intended by Napoleon in 1804, and failed partly by his instructions not having been attended to.

Surely it cannot be denied, (without impeaching in any degree the skill and bravery of our navy), that there is thus a possibility of our yielding temporarily in one locality our naval sway, to which alone it appears we are to trust for our very existence as a nation.

10. It would be illiberal to suppose any weakness on the part of our naval commanders, but without admitting the possibility of any disgraceful failure, among the contingencies by which we may be affected, we may calculate on not having *always*

a Nelson to command every fleet requiring intelligence and decision.

11. It would be injustice to our seamen to consider that the victories they had won could have been obtained without considerable efforts; and where great efforts are necessary, the opponent must be admitted to be powerful, and there must be a consequent possibility of failure; and one such, even though partial, may lead to destruction.

12. When the French were far less powerful generally than at present, and their fleets were crippled and intimidated, even then an invasion was considered so possible, that very great efforts were made to prepare for opposing it on shore: it is far more necessary now.

The conclusion I would come to is, that if not probable, it is at least more than possible, that a temporary superiority might be obtained in the Channel sufficient for the purpose of invasion in great force; and that if such an attempt should then be made, it is *more than probable* it would be successful, and that London itself might be in the hands of the enemy in less than ten days.

Under such circumstances how could the war be prolonged, and what important effect could be produced even by a resumption of our naval superiority by the return and accumulation of our fleets from abroad?

With all the resources to be found in England, with the possession of the shores on both sides of

the narrow parts of the Channel, and of at least some of the small ports on the English side, the 100,000 or 120,000 men would be quite independent of any necessity for further commanding communication with France for some months.

Is it not terrible to think that, with all our great wealth and vast possessions over the world, the whole may be placed in jeopardy and lost at one blow by this vital and incomprehensible neglect ?

It would be absurd to suppose that the French are not thoroughly acquainted with all our relative positions: it is notorious that such considerations are not left with them to the chance of the observations of individuals who may be imperfectly informed or unqualified for the task, but form part of an organized system; and we have proof, in the remarks made by many of their officers, on occasional visits to our ports, that our weakness is observed.

One very important consideration in this apprehended crisis is the relative value of the stake for which each party would have to contend.

With us it is everything we possess in the world collectively, and in a great degree individually, and our very existence as a nation. With the French it is only the risk of the loss of the force employed; for even supposing that force to be absolutely and entirely annihilated, we gain nothing more than present safety by the success.

Thus they would be contending under the greatest possible advantage, with no fear but the loss of the force engaged, usually the smallest consideration in military conflicts.

It is this feeling that makes the idea of a war so popular in France, and that renders a great majority in that country so zealous for augmenting and improving their naval means.

It is the same feeling, I am persuaded, although not openly acknowledged, that leads many thinking men in high stations as well as others on our side, to deprecate the thoughts of war, and to be willing, perhaps wisely, to submit to insults, and perhaps, even to substantial injuries, in order to avoid a rupture.

It is miserable for a country like England to be reduced to such a condition.

A remedy is easily to be applied, and though at a large cost, it is not one that can be put in the slightest degree in comparison with the importance of the object.

1. A large increase of our regular army.

2. The immediate preparation and constant maintenance of ample military equipments of the best description.

3. The organization of the militia *during peace*, in a state for being very rapidly assembled and equipped whenever necessary.

4. The protection of some leading points by fortifications, particularly on the coasts, with some

such defence at *every port* in proportion to its importance, from a small battery to defend the entrance of those of minor consequence, to the surrounding in strength of our great arsenals. It is not for me, in this place, to enter into details; but, subject to higher authority, I would say, that our regular army should never *in peace* consist of less than 30,000 men, cavalry and infantry, in Great Britain, that could be collected as an *available reserve independent of what is required* at different stations, including Ireland: that is (allowing for wants in the colonies), an absolute increase of at least that amount to our present army.

That such force should be so formed by regiments or battalions of small peace strength, as to become a ready nucleus for doubling it quickly on the breaking out of war, or necessity for arming; as it ought not to be less than 60,000 at such an emergency.

This, with the militia, would make us feel secure,—would enable us to reinforce any threatened colonies, to trust our fleets away occasionally for important objects; and would even instil into foreign powers some little dread of what might happen to them at their own homes, by an offensive movement on our part,—would tend to check their pugnacious dispositions, and afford us a powerful support in negotiation.

And after all, what is the amount of this force,

and great expense? We should then, including our troops all over the world, not be maintaining one half of the regular army that is constantly collected in France.

There is still another point of disadvantage under which we labor in our present position.

The contest has hitherto been considered as between France and England; but let us suppose some other powers to be mixed up in it. France might be joined, and it is probable she would be so, by Belgium, which would not add materially to her power; but if by Holland also, although we will acknowledge, far less probable, our difficulties would be greatly increased.

We must have every reason to fear that the United States of America would not lose so favorable an opportunity of bullying and urging the most outrageous pretensions, which is so habitual to them.

They again, are always ready to quarrel, being, it is presumed, under a similar impression to that before adverted to as being felt by the French, of having a large stake to gain by the conquest of Canada, while incurring small risk comparatively in making the attempt.

This is another pressing reason for the increase of our military means; as it would also tend to awe the Americans into somewhat more moderation; and it is clear that we ought not to defer the adoption of measures of precaution till the danger arises.

On the other hand, what co-operation of value can be obtained by us from other powers? nothing but a continental war, in which France should be deeply implicated;—that was our chief security during the last French wars, and would be again, but it is still a contingency; and as the subjects for quarrel might be only between England and France, in the first instance, some time would be required before other countries could become embroiled in them.

Thirty years' peace in Europe has brought up a new generation among our neighbours, who, with young and inflamed spirits, perceiving their advantages, show a strong propensity for war.

To a great industrial community however, like that of England, hostilities, even without disasters, would be accompanied by great evils, heavy losses in property, and an enormous expenditure.

Such a state of preparation as we are now advocating would greatly tend to ward off a conflict, or to shorten its duration, should it take place; therefore even as regards expenditure, however paradoxical it may appear, it would prove ultimately a great saving to the country, in addition to enabling us to maintain our station among the powers of Europe.

REMARKS ON THE MILITARY CONDITION OF GREAT BRITAIN.[1]

The Duke of Wellington has repeatedly and strongly given his opinion of the inadequacy of the military condition and establishments of this country for even self-protection.

If such an opinion needed confirmation, it has met with it in the concurrence of that of every military man who has given any attention to the subject.

About the years 1845, 1846, some slight improvements were commenced, which have since been gradually checked; and the yielding to the pressure for reduction of expenditure, and of taxation, has led not only to the present low scale of military organization, but it has been held out to the public by the Chancellor of the Exchequer and Secretary-at-War, in Parliament, to expect that it shall be still further reduced.

At the risk of the accusation of being importunate, it would seem to be a duty to endeavour to explain once more how the circumstances referred to by the Duke remain unchanged, and how the present course of proceeding, if persevered in, must necessarily lead to imminent danger to the most vital interests, and the very safety of the country, and to consequences with which no financial views can be placed in competition.

[1] In 1850.

The very object of armed forces and military means appears to be gradually diminishing from sight. Referring to the debates in the House of Commons on the estimates, the troops seem to be considered merely as a reserved police, for the preservation of internal tranquillity at home and abroad, and the scale for their maintenance and their capabilities to be measured solely by the requirements of a time of peace; whereas, a much more essential ingredient is, a condition that shall be adequate to meet foreign aggression, whenever we shall be involved in war.

By this is not meant the constant maintenance of war establishments, but such forces and organization as shall enable the country, in case of exigency, to be ready to meet it in sufficient time.

The circumstances of Great Britain, as compared with those of other European powers, render it a difficult problem how this is to be accomplished with the smallest degree of outlay and inconvenience; but whatever that may amount to, it can be considered in no other light than an item of absolute primary state necessity.

We are arrived at a condition, that, in case of war with any great power, we shall require all our first exertions to be applied to defence and self-protection; and limiting the inquiry to that extent, it may be shown how very insufficient are our arrangements.

We have our foreign possessions to protect, as well as Great Britain itself.

They are numerous, wide-spread, and under different circumstances as to importance and facility of maintenance.

The great value of many of these foreign stations as military positions, and the neglected state of the defences of some of most importance, where even great capabilities exist, are well worthy of consideration; but the object of this memorandum is, to explain our extreme weakness at home, in comparison to which any reference to the colonies dwindles into insignificance.

Any striking impression made here would render the state of defence of any of our foreign possessions perfectly immaterial.

If our military condition continues as at present, and still more, if the system of continued reduction is pursued, I consider that it can be shown to demonstration, that it is perfectly possible,—that is, that it is within the reach of the combination of many not improbable circumstances, that, within a few years, or on the occasion of the first war, *an overwhelming French Army may be in possession of London!*

Our foreign territories may be assailed by any power which may happen at the time to be in superior force in the given sea; but it may be admitted, that it is only by France that we can be formidably attacked at home.

It is to that power, therefore, that attention is here to be turned.

The French, even in peace, have an available well-equipped and well-organized army of several hundreds of thousands of regular troops at home, and with an ample provision of every accessory for taking the field.

They could, for any important effort, bring with ease to their shores 200,000 of these troops; and now that they have railways to the coast, this might be accomplished in a few days. Half that number once landed in England would, as we are now circumstanced, indisputably subdue the country; we could not bring forward any force that would have a chance of competing with them.

Nor would any reduction on their part, for financial considerations or otherwise, of some 40,000 or 50,000 men, at all affect this position.

By stripping Ireland and every part of Great Britain to the utmost, we could not probably bring into the field (and that in dribblets) more than 50,000 or 60,000 troops of every description; and those, however good the *regulars* may be, most imperfectly provided with many absolutely essential requisites for a campaign, without an adequate force of artillery, or organized staff, commissariat, &c.

As to the hundreds of thousands of valiant Britons, who would spring up for the defence of their country, according to the proud popular feeling, they would fly like chaff before the wind in presence of a tenth part of their numbers of French

soldiers; nor is it any disparagement to our people to say so, for we know by experience that a body of our own soldiers, composed of the same materials, can drive any number of the undisciplined before them; and, again, how are these masses, thus called forth, to be armed, equipped, or even *moved?*

It is a mischievous delusion to give them in such a disorganized state, any value whatever.

A common reply to any question of an invasion is, "Let them come; I should like to see them!" without a particle of reason for this bravado. I, on the contrary, would say emphatically, "I should be very sorry to see them!"

It is here to be remarked that the relative power of the organized army is greatly augmented with increasing numbers: thus 20,000 troops would contend better with 200,000 resisting population, than 20 against 200, or 2 against 20.

The great stand, however, is made on the argument, that this case rests upon an *if*, in which, as it is said, consists precisely the great difficulty; thus,

IF the French had an army of 100,000 men landed in England, which is held to be impossible in face of our "wooden walls of Old England," gallant tars, and power of steam.

This is another dangerous delusion; what was the case in 1803, when Buonaparte threatened an invasion?

Although at that time our navy swept the seas in all parts of the world, and single frigates, or smaller cruisers, daily insulted every part of the French shores of the Channel; even under those circumstances a close view and consideration of the danger proved the risk of trusting entirely to such marked naval superiority; nor were means neglected for the purpose of a vigorous resistance on shore also.

Government was authorized to raise the army of regulars so as to admit of upwards of 100,000 being within the United Kingdom; we had 80,000 militia on foot, forming very respectable troops, and a force of volunteers or levy *en masse*, amounting to 300,000, enrolled, armed, and organized in a more or less efficient manner.

The metropolitan districts alone furnished 46,000 volunteers, of which the King reviewed in Hyde Park, on one occasion, 60 battalions amounting to 27,000; and notwithstanding these formidable preparations, Alison, in his *History of the French Revolution*, remarks that, "numerous as were the chances against the successful issue of so vast a design, it appeared in the sequel how near the invasion was of succeeding, and how little the English were aware of the danger which really threatened them."

Although with such preparations I cannot agree with Alison in considering the power of opposing the invasion *on shore* as so problématical, still it

was only the opportunity given by the French Admiral (unnecessarily as would appear) to Nelson, to fight and gain the battle of Trafalgar, that prevented the attempt being made.

The power and means of the French to try the issue remains in as much force as in 1803, while our organization for resistance has vanished.

Even after Trafalgar, when the French navy was in a still lower condition, Napoleon's instructions show the various modes by which he could still harass, threaten, and entertain hopes of inflicting heavy losses on British commerce and dependencies in different parts of the world.

What, however, would be the case now? Judging from opinions given by most of our intelligent naval officers, it is more than probable that the French, for the first few months of a war, would have absolutely a naval superiority; the greatest advocate for our present means could not declare it to be impossible; and economy and reductions pushed to a little further extent on our side, with a further encouragement on theirs of the popular feeling in France for extended naval means, would render the matter decisive, in addition to the ordinary palpable reasons why we never can be sure of having an unceasing naval superiority in any one point.

The French Captain of the Navy, De la Graviére, in his sketches of the last naval war, points to such a result in his remark, that at the period of the

battle of St. Vincent, we had "108 sail of the line, and 400 other armed vessels equipped, but being obliged to protect so many colonies and interests extended over the face of the globe, we could not send more than five sail of the line to reinforce Admiral Jervis." Thus making him up a force of only 15 ships to oppose the Spanish fleet of 25.

There are two considerations that render this a most important and anxious question; one is, the time it would take to *man* our ships under the present system, which only admits of voluntary engagements: when a single frigate is sometimes months in completing a crew.

The other, that henceforth the influence of *seamanship* will not be so great as formerly in conflicts at sea; *gunnery* and *steam* will now bear a very important part.

With regard to manning their ships, the French could have their fleets at sea long before ours, by means of their naval conscription, and enrolment of their coasting seamen, fishermen, &c.

The quality of good seamanship being less predominant, we lose a portion of a great national advantage.

In gunnery there is no reason why the French should not at least be our equals, knowing the importance they attach to it.

In steam power we must eventually be very much their superior; but it is a power that may be turned

to great account for particular occasions, even by those who on the whole are very inferior.

A French Commission of Officers, in a report to their Government in 1848, says :—

"It must not be forgotten that the principal alterations in naval affairs since the peace of 1815, as regards the relative position of England and France, are favorable to France.

"Steam navigation and the employment of heavy shell guns on board ship are the most important, and will give a great advantage to France, as well as other maritime powers which have but a small comparative number of seamen."

From Dunkirk to Cherbourg, a length of about 200 miles of coast, including the ports of Calais, Boulogne, Dieppe, Havre, &c., they are only from three to ten or twelve hours reach of as long a line of ours by fair wind and steam.

Every vessel, down to their large fishing-boats, would make a transport; each steamer could carry and tow some thousands of troops; and by the capabilities of steam, a combined operation for a concentration of the forces from all their ports could be brought to bear at one time on any chosen point on our coast between Portland and North Foreland.

It is not necessary that 100,000 men should be landed at once; a very far less number would suffice for a first firm footing, which being once obtained, and possession taken of some of our small ports, reinforcements would follow as fast as each single vessel, acting independently, could convey them; and finally, having possession of

both shores, the communication between the two countries could not be intercepted, even although we should then be able to obtain or resume a naval superiority.

A month or two even from any period of peace would be sufficient to make the necessary preparations, which need not be at all manifest; and a week's command in the Channel afford ample time for the accomplishment of the enterprize.

It has been often maintained by Frenchmen of influence, that France would be justified in making such an attempt even before a declaration of war, but, at all events, it might immediately follow it.

Thus, in any case of angry discussion (or a quarrel might be picked for the purpose when the relative circumstances were favorable to them) *we are at their mercy.*

A few months would place our adversaries in a condition for the grand undertaking, of which only the last week or two may make us aware even of the prospect of a war, while *a year would not suffice, by every effort, and any extent of expenditure, to put us in a condition of resistance.*

It must not be supposed that this is not well understood abroad. The French, in particular, systematically collect every possible information on the military condition and capabilities of other powers, especially of their neighbours; so much so, that if all the means of our military departments were laid open to them, it is to be doubted

whether any essential information could be added to that which already exists, or is continually pouring into the archives of their Ministry of War, Depôt de la Guerre, and Naval Administration.

It is known they have memoir upon memoir on the best means of effecting an invasion of England; and in recent times, their statesmen and military and naval men have incidentally thrown out hints that they were quite aware of our weakness. Even in a German newspaper of considerable circulation, there appeared, a year or two ago, with reference to the state and policy of European powers, a keen though perhaps somewhat exaggerated exposition of the danger we should incur from invasion, if we went to war with France.

Extract from the *Allgemeine Zeitung*.

"It is known to all the world, and particularly to those foreign governments which, perhaps, hope to profit by the circumstances, that England is neither protected by a standing army, nor by a popular militia force.

"Immeasurable sacrifices, especially as regards the military force of the nation, have been made to the spirit of saving, which since the peace of 1815, has tied the hands of every English Administration.

"Throughout the whole of Scotland and England, it would hardly be possible to collect 10,000 men; the garrison troops of Ireland, are, it is true, more numerous, but entirely absorbed by the necessities of that distracted country.

"The people of England are, of all European nations, the most unused to bearing arms, and the most averse to military service; and it is therefore necessary with the English to subject them to the longest course of training in order to make soldiers of them.

"One consequence of this state of things is, an essential decline of British influence abroad, as the military power of the country

forms a ridiculous contrast to the tone which Lord Palmerston loves to assume in diplomatic negotiations; and secondly, a real danger of invasion from the side of France, to which the country can no longer look with indifference.

"A few hundred fishing-boats, towed across the Channel by steamers in the course of a calm and cloudy night, might easily transport a considerable French force to the shores of Albion."

I will not attempt to deny that difficulty might arise to the full success of the attempt. The invaders may have overlooked some essential requisite; a sudden gale of wind might providentially befriend us at a critical moment, or other contingency occur; but this would not be *our fault.* These possibilities are slight; and our national safety should be established on a basis of certainty and not of chance.

A persevering determination to be prepared at all times, for the establishment and maintenance of a decided superiority at sea, from the first breaking out of a war, however sudden, might increase our hope of safety at home by confining the efforts of our fleets to that object, and abandoning our colonies; but even that would still leave a very considerable risk if unprepared on shore; no prospect, however, is to be seen of such provision and attention to our navy.

On the contrary, a determination to reduce the naval service also has become a popular topic; and from the declared opinions of experienced naval authorities, there appears to be much to amend in the system of construction and of the manning of our ships.

While every consideration given to our military state proclaims the greatest danger to the country, which becomes the more convincing the more it is gone into in detail, no reasons whatever are shown to the contrary; the whole question is met by a determination to avoid expense, and a blind hope of perpetual peace.

It may be right here to advert to the various objections that have been urged in Parliament, at public meetings, and by the Press against this reported danger.

It will be observed that they are all founded on evasions of the question, which is, whether the danger be real or imaginary; if real, these objections offer no answer to it; if imaginary, they are superfluous.

The first is, that the military endeavour to create an alarm for their peculiar advantage.

It may be quite right to receive with caution the advice of interested persons, but it is not wise to reject it on that account without consideration.

If your bricklayer and builder told you that your house was in danger of falling, you would not neglect the warning altogether because he was an interested person; but you would examine and inquire, and satisfy yourself as to the extent of truth in the statement, and act accordingly.

The second objection is the impropriety of creating alarm at home, and of the exhibition of warlike propensities as calculated to excite

jealousy and irritation on the part of our neighbours abroad.

As regards the panic at home, the same answer is still applicable, namely, that the danger is real or imaginary. If real, and the public are studiously led into a neglect of it, there is no remedy but to undeceive them.

That we should not be made aware of any existing danger because the intimation would *frighten* us, is a singular doctrine; by the same rule a man should not insure his house, least an alarm of fire should be excited in his family.

As for the dread of raising the jealousy of the French by the exhibition of warlike propensities, (the object at which all these desired remedial measures aim is purely to provide a capability of self-defence, they would be far from affording means for foreign aggression,) the fact is *we peculiarly* have everything to lose by war, and nothing to gain. Our military available means are so inferior in amount, and our unprepared state so manifest, that if measures of improvement excited jealousy, it could only be on the ground of a desire that we should not raise ourselves from so *disadvantageous* a position.

The third objection is, that this is altogether a false alarm, founded on an assumption that the French have a desire to attack us, of which there are no signs whatever; on the contrary, it is asserted that they are sensible of the great ad-

vantage of encouraging peaceful and commercial relations with us, while facetious remarks are added, founded on visits to friends and congenial spirits in Paris, on the impossibility of discovering in the French any bug-a-boo propensities to come over to England for the purpose of killing and eating us.

This is begging the question altogether, under an implication that the alarm applies to circumstances of the immediate period; and if so, it might be reasonably answered that there is no appearance of our being assailed; but it is not so, the blot is one of long standing, and may be hit at any time hereafter if precautions are not taken; and perhaps the most appropriate time for avoiding misconception and the appearance of contemplating hostilities, would be that when there is not the slightest motive for difference between us.

But I cannot agree in opinion with those who lay so much stress on the harmless inoffensive disposition of the French nation.

Without by any means supposing that they are always anxiously looking out for occasion to quarrel, or that they would at this moment be at all desirous of doing so, I believe them to be naturally irritable, sensitive, ambitious, and not at all averse to war; and with many old antipathies and jealousies rankling in their minds against Great Britain. Nor can it be supposed that should an opportunity arise, they would not be desirous to

wipe off the recollection of the prominent part we took in reducing the power to which they had been raised by Napoleon.

There are many indications of the existence of such feelings, which ought to carry far more weight than any conclusions to be drawn from partial, friendly, and commercial meetings.

There are the frequent outpourings of the French press in this strain, whenever any discussions arise between us, breathing animosity and defiance, a sure indication of popular feeling. The unsettled state of affairs in France for the last two years has weakened these sentiments, or rather has repressed the expression of them; but we cannot suppose them to have been so suddenly and miraculously subdued that we may not anticipate their renewal when the government shall be again sufficiently settled, and the two countries may have matters of more or less consequence at issue.

A similar tone, not quite so unreserved or violent, but not less impressive, is to be observed in the publications and avowed opinions of many of their eminent influential statesmen and high public characters.

There is also a constant sensitive anxiety displayed for the improvement of their naval resources, for which no motive can be assigned but their desire to make head against Great Britain.

A military report on what was necessary for the defence of their coasts was printed and circulated,

though not published, only a year ago (1848). This report was drawn up in 1843, but it was considered worthy of being promulgated even at the present time.

The object of that inquiry was not to ascertain the power of resistance of France against invasion by us, which the report truly states the British would find to be impossible, but how best to secure their harbours and bays from partial incursions, or the shipping in them from the attack of British cruisers.

We may perceive also a tendency to seize every opportunity (some even hastily and without very sufficient excuse) for the establishment of new holds in distant seas, such as Otaheite in the Pacific, and Mazotta in the Mozambique Channel; and for the improvement of those they had already obtained, as the Isle of Bourbon, Goree, &c. These measures, especially the former, can only aim at a power to operate against our possessions or commerce.

But what could we have more expressive of the sentiments of the French towards us, than the indecent cheers and acclamations with which, very recently, the announcement by the Minister of War in the Chamber of Deputies, of the interruption of amicable relations with Great Britain, (the cause being very imperfectly known or apparently cared about) was received by all parties? one only, the Red Republican, and that the least

worthy of being connected with in any community of feelings or interests, after a few moments repressed their sentiments, on recollecting that it was not quite in accordance with their particular prospects.

We have a proof that they have not thoroughly lost all desire for a military interference with other countries in their recent expedition to Rome.

Supposing, however, that we could give them credit for the full extent of friendly and peaceable impulses claimed for them, it surely will not be denied, that, notwithstanding all the efforts of the Peace Congress, and the advocates for the system of mediation, quarrels may arise, and hostilities take place.

A disagreement on the treatment of an individual in a remote part of the world, by a commander of another state, as in the case of Mr. Pritchard at Otaheite, or a question of disputed national right, or many others that are not of unusual occurrence, may make all the difference. Nor is it a sufficient argument to say that such discussions have not of late years occasioned hostilities. When disputes arise it is impossible to foresee how matters may be fanned into the flame of *national* irritation, even supposing *governments* to be deprived of the power of making war.

Notwithstanding our desire for peace, we are sensitive enough, and it is to be hoped always shall be so, on the subject of any encroachment

on the liberties or interests of our own people, or of international rights in which we are concerned; and to such encroachments we should be peculiarly liable, if we were considered too weak either in moral or physical force for resistance.

Though there have been happily in France for some years a preponderance of ministers of very peaceable dispositions, there are also to be found statesmen of eminence and of great influence who exhibit symptoms of feelings of a very different nature; and the condition of France is such, that no one can feel assured that the government may not fall into the hands of individuals able to engage in warfare, and to make it popular, and of the susceptibility of temperament on that point, which has been very frequent among the rulers of that country.

It is indeed far from improbable, that a foreign war might be considered the best mode of extricating themselves from the social disturbances that now beset that country, by turning the perturbed spirits of the people into another channel.

Moreover, it is not sufficient to make a showing of the *improbability* of war, but proof is required of its *impossibility*.

And here again it becomes necessary to decide whether we are or are not exposed to the dangers of invasion. If we are, by our entire reliance on the peaceable dispositions of the French, it must be intended that we should resign ourselves to the

magnanimity of that nation, and consequently be ready to receive from them whatever law they may be pleased to dictate; in point of fact, to maintain our national existence on sufferance.

The next objection bears upon a great principle that has recently been much pressed upon the attention of the public by enthusiastic politicians and benevolent men.

It is contended that war, considered in itself, is a brutal and barbarous practice, which it would be desirable, and, as they would argue, practicable, to abolish altogether, by having recourse to mediation and arbitration in case of differences; and, as a consequence, there would no longer exist a necessity for the present enormous and ruinous expenditure in every country on military armaments, to the great advantage of civilization and commerce, to which those means would then become applicable.

This peace movement is *morally*, *intellectually*, and *theoretically* quite correct, but unfortunately it is *practically* impossible.

If this amiable doctrine may not be deemed an effort against the immutable attributes of human nature, it must, at all events, be the work of ages to subdue to its influence the perverse disposition of mankind.

We have rather a striking example of the difficulty attending the attempt in the conduct of some of the most energetic advocates of the principle

itself. Within a few short weeks, or even less, of great meetings at which they powerfully declaimed on the blessings of universal peace and amity, on the occurrence of events that shocked their own political feelings, nothing could be more aggravating, insulting, or intolerant than their language and conduct, or more calculated to promote animosity, and lead to war.

The occurrences of the last two years afford no proof that the dispositions of mankind for strife and warfare are by any means allayed.

Our best security for the diminution of war consists in the low and embarrassed state of the finances of all the influential powers, caused, perhaps, in great measure, by the enormous expenditure on military and armed forces; in that respect the evil may, in some degree, be said to work its own remedy, but it is not a complete one; for it being the practice that armies should be supported by the countries into which they are introduced, this difficulty will not exist when there is a prospect of carrying the war out of their own country.

Thus it could only have been in this way that the Austrians could have accomplished the great efforts they recently made in Italy, and the poor Hungarians must have been grievously distressed by the charges for the support of the Austrian and Russian armies, in addition to the more direct blows inflicted on them.

By the same course of proceedings, and by the spoils of many of the other countries of Europe, the French so increased their wealth and power by their wars after the revolution in 1793, that it required the combined force of all the rest of Europe to bring them again within bounds.

The prospect of the event more immediately under our consideration, namely, the subduing of the richest country in the world, by the most rapid means, is just that which might be thought sufficient to justify the act of entering upon a war, without the establishment of resources for a prolonged and more equal contest.

England is the only country in the world thoroughly and universally impressed with a constant desire for peace.

The fact is, we are the most deeply *interested* in avoiding war; every individual in the country is aware that we have everything to lose, and nothing to gain by it.

Our institutions, also, are so completely of a civil character, that all interference on the part of the military, and even their appearance, is as strictly prohibited as possible. The natural result of all this is, that every military man, when away from his station, at once transforms himself into a civilian as far as he can, as if ashamed of his profession.

We are thus the least military of nations, and have no *indirect* military resources.

It is easy for *us* to preach up the doctrine of general disarmament, but it would affect others in a very different manner.

The institutions of many other countries are essentially mixed up with military considerations and establishments. Those of Russia and Prussia are entirely so; Austria, and other German States, and even France, in a great degree; for what is the national guard of the latter, but an armed population equipped and organized as soldiers? Before these can disarm or essentially reduce their military strength, they must altogether alter their constitutions and principles; and what influence or power have we to induce them to do so?

Public opinion widely spread would appear to be the means looked to for this purpose. This is already in the right direction in England, and among certain classes it may gain some proselytes in France, though not to the extent it has been attempted to show; but in other countries, the chance of instilling this opinion, or of turning it to account, even when instilled, will be in different degrees less, and, in the meanwhile, till it become general, each state must take care of itself, for all must unfortunately be regulated by the latest convert to its influence.

Thus, if Russia shall habitually maintain a powerful well-equipped army, Austria and Prussia, even if reluctant at the time, must be prepared for self-defence; this again must guide France, and

other adjoining countries, and thus cause and effect will spread the evil over all Europe.

Let the peace societies, however, continue their good work, and commercial intercourse second it; but as it must be confessed that they have not yet arrived at a result calculated to induce any individual state to disarm, and throw itself on the mercy of its neighbours, it would be absurd to make their principle a plea for us who are notoriously the worst provided, and consequently the least prepared to commence, by the still further reduction of our already paltry military establishments.

The proposition to submit national differences to arbitration, is very pretty in theory, but can never be enforced. When parties are tired of their disputes, and both wish to effect a reconciliation, without compromising their dignity, they have been accustomed to adopt a mediation, and will continue to do so; but this they never have done, nor ever will do, when both or either are much animated in the question at issue.

In the result of the differences between Great Britain and the United States, on the boundary question, we have a fair instance of the little reliance that can be placed on arbitrations in state disputes.

The matter was referred by mutual consent to the arbitration of the King of Holland, a perfectly impartial umpire, highly respected for moderation and judgment. After full consideration he made

his award, which was *instanter repudiated by* both parties.

Great Britain subsequently expressed a readiness to abide by the decision, not so the United States, and the negotiations recommenced more angrily than ever, till finally, to prevent an absolute rupture, we, as the weakest at the game of brag, and the least disposed for war, (as under our present system we always must be) conceded, it is believed, everything that was essential.

Another attempt has been made to restrict the operations of warfare, by raising a popular outcry against the capitalists of England, who should dare to engage in loans for its assumed support.

If this had been urged against war in the abstract, the weakness of the effort might be excused in consideration of the amiability of the motive; but although the peace doctrine is artfully introduced as a make-weight, the avowed object is the support of one party in a contest, and if that party had been the one to require the loan, every encouragement would have been given to it, without reference to the bloodshed to which it might lead.

The whole is, however, as decidedly an anti-free trade movement as could be devised. It is even on the illiberal exclusive dealing system, and is calculated to bring the tyranny of popular clamour, and perhaps worse than clamour, to interfere with the disposition of individual capital and industry.

The same argument might be brought to bear upon the manufacturers of steam vessels and engines, or on the merchant who holds a great stock of iron, forbidding their attention to a large and profitable order, because in the opinion of some great popular orator, the articles manufactured are to be used for purposes of which he does not approve.

At all events, it is so absurd to suppose that either capitalists or merchants will be deterred from the most profitable investment of their means, by the consideration that the object is opposed to some high notions of political morality, or that they will on that principle leave the field open to others who will not be so scrupulous,—that we must suppose the question to be raised, not on the professed view, but for the purpose of uttering sharp invectives against such or such a foreign power,—invectives that bear all the character of the ravings of political enthusiasts, rather than the reasonings of intelligent men.

Lastly, there remains the consideration of the matter of finance, on which is founded the only objection carrying any weight against the increase of our military establishments; without this, indeed, the others would be speedily dissipated.

This is enforced in many different ways; the poverty of our resources is insisted upon; it is represented that we are worn down by taxation, which acts as an incubus on the industry of the country;

that the army and navy are the only extensive objects of expenditure in which it is possible to make reductions, and that, consequently, they must be adapted to the desire of the country for financial relief.

In arguing against the tenor of this doctrine, I would most emphatically disclaim any wish to diminish the great importance to be attached to the reduction of public expenditure, or to treat lightly the evil of accumulated taxation, which, I am quite aware, acts directly and indirectly as a check on national improvement.

Nor would I advocate any species of extravagance in outlay; first fixing upon the necessity of the case, let the most rigid economy be observed in making the required provision; let the smallest means, and those the least costly, be provided, so that it be adequate, but do not allow the matter to be treated as a question of expenditure in the abstract, without reference to the vast importance of the object, which is no less than to prevent the certainty of great sacrifices in our foreign possessions and commerce, and the possible loss of our very existence as a nation.

A great increase of outlay, if necessary, is not to be put in competition with results of such magnitude.

But the propriety of a due degree of preparation may be argued even on the principle of economy, for it will greatly tend to avert war, by removing

from foreign powers a temptation to molest us, and by giving force to our negotiations, which, from our very condition, and the feelings of our population, must always be pacific; while the amount of capital that must be expended in the first year or two of any war would afford in perpetuity the means for thus warding off hostilities, and give us a sense of security and of confidence against insults, that he must be a bold man who can feel under existing circumstances.

It has been asserted that we cannot *afford* this expenditure. What is this but avowing that the richest nation in the world cannot afford for self-protection one half of the expense incurred in preparation for aggression by states far less affluent? But there is a delusion in the general estimate of our available means. The public revenue, as authorized to be levied yearly, is usually considered as our income; but, in point of fact, it is probably of ten times that amount, or even more; and is therefore quite sufficient to provide for all *absolutely necessary* expenses, admitting always the injurious effects of increased public expenditure where it can be avoided.

A reduction in the military means of the country has been urged by referring back to the year, since the peace of 1815, when the expenditure was at the lowest, on the plea that such an expenditure and such forces being then sufficient, there cannot be any necessity now for a larger establishment.

To this it may be replied, that whatever may have been the cause of the reductions made at that time, they were utterly unjustifiable as regards a due provision for the preservation of our property, and existence as a nation; and it has required the increased efforts of succeeding years to endeavour to counteract in degree the manifest evils incurred by that very wasteful assumed economy.

Besides, the real question to be considered is, not what was necessary then, but what is so now? and independent of the miserable state to which the armed force and means were reduced for our condition at that period, it must be recollected that our population, our wealth, and our possessions, have since then greatly increased. As one proof of this, there has been, from the year 1829, an increase in the value of our exports from 36 millions to 61 millions in 1849, and not only have we thus an increased state as it were to govern and to protect, but to keep in view that other countries, with which we may have to compete, have also gained in power. If, therefore, they enlarge their means of annoyance, we must increase ours of resistance.

Assuming the argument in this memorandum to have been fully established, and that it has been proved that we are in a most improvident state of inferiority, and of absolute danger, the great question will arise, what are the remedies to be applied?

The first impression will be, large military forces, maintained during peace of whatever duration, on a basis adequate for the protection of the country, and of its possessions in war.

This is unnecessary, and would be very wasteful. The problem to be solved, is a reasonable peace establishment; and, in addition, the groundwork in military local organization of forces, in stores of arms, ammunition, and military equipments, and in fortifications, that would enable the country, in a case of emergency, to call out its means and energies, so as to be placed in a state of defence as rapidly as the occasion could possibly require.

However reasonable this demand may be, it will never be listened to, nor will any step towards it be practicable, until the public shall be aware of the real state of the case.

At present, the popular attention is anxiously and exclusively turned to the palpable advantages of the reduction of public expenditure and of taxation; and this feeling is so strong, while any apprehension of danger is so weak, that no government could attempt to bring forward measures for the safety of the nation with the slightest prospect of success, under the present state of delusion in the country.

It is very well to talk of husbanding your financial resources for war. When once embarked in hostilities, and in a position to maintain your ground, large financial means, freely and judi-

ciously made use of, will ultimately command success; but no accumulation of funds can provide a timely remedy for the innate weakness that cannot resist the first blows dealt.

In ordinary life, we are not neglectful of providing *a security* for our own property and interests.

We spend enormous sums in insuring our ships, our houses, and even our hay-stacks, from the casualties to which they are liable; in our fences and palings, our shutters, locks, bolts and bars, we *fortify* our fields and houses; and we maintain our *troops* of porters, watchmen, and police, all of which are nothing more than means of *defence;* while, at the same time, we refuse every necessary protection for the whole empire at a per-centage cost, that would be insignificant compared to what we thus judiciously apply to each of our private possessions.

Reliance is placed, and may be so very justly, in the courage, energies, and feelings of the population of Great Britain to resist any invader, but those qualities are insufficient, unaided by warlike means and organization.

It is impossible to have gone thus far into the consideration of this question without imbibing some ideas on the nature of the measures best calculated to afford relief, at the smallest expense —a consideration of which we must not lose sight.

The argument against the maintenance of a

standing regular army in sufficient force to meet a contingency that may not occur in very many years is perfectly just. We require an army that shall be comparatively inexpensive in ordinary times, without the incubus of a heavy dead weight, and which shall, in fact, be absorbed in the mass of the population, and latent until an emergency shall call for its appearance, when, however, it should be found in *immediate* and *full* readiness for vigorous and effective action.

In order to avoid the error of making indefinite demands, which may be met by calling them impossible, and thus give an opportunity of indefinite postponement, it may be well to point out a few leading principles for consideration.

The means that would give a reasonable chance of security, and that would possibly tend to remove, from the minds of *foreigners*, the impression that we are so vulnerable as is now believed, would be a power to bring rapidly into action, to any part attacked, a force of 100,000 troops and 100 pieces of cannon, without completely abandoning posts and districts that ought at all times to be guarded.

This will require an addition of about 80,000 men to what we have at present available.

Suppose these to consist of what we will call militia—that is, citizens enrolled in some shape or other; the 100,000 men then to be produced in the field against an invader would be composed of

about one third regulars, and two thirds of this species of force organized for emergencies.

Military men would anxiously desire a larger portion of the regulars, because the relative value of the militia will decrease in proportion to their relative strength.

Thus, supposing them to be as well equipped and organized as can be possibly expected, if they bore only the proportion of one third of the army, the regulars being two thirds, the two forces would be brigaded together, and there would be little, if any, difference in their value in action; if they composed half the army, they would probably be mixed with one third of their number of regulars, to give them a tone, encouragement, and guide; the remaining strength of regulars, with perhaps a select small number of regiments of the others, being kept together for the reserve, and most important features of the campaign.

If the militia were two thirds, their brigading would probably be almost exclusively by themselves, and the regulars retained necessarily as a compact body of main reserve.

The chances of success would vary with these several proportions; but with the most unfavorable proportions, with the numbers above demanded, and with the advantages that the mass of railways afford for rapid concentration at any point, the whole well regulated and organized, any British general would look with confidence to the result.

A leading difficulty and source of expense is the absolute necessity for periodically calling these bodies together for exercise, during which occasions there must not only be a direct outlay for their remuneration, provision, and accommodation, but the indirect inconvenience of removing them from their habitual occupations.

The more time given to these military exercises, the more efficient will these bodies be for the service; the less the time devoted to this purpose, the less will be the inconvenience experienced by the community in the maintenance of the system.

After the personal arrangement, the next consideration is that of arms, ammunition, and military equipments, to be maintained in constant readiness.

And here a false argument is very prevalent, namely, that in a great manufacturing country like this, everything of the kind can be readily procured when wanted, and, consequently, that it is unnecessary to maintain a large stock in hand.

This may be the case with many items of ordinary use, between which and the others a distinction should be drawn, keeping, perhaps, only a few patterns of such as can be always readily procured in the market; but it would be most dangerous to trust to manufacturers to provide for what may be wanted rapidly in large quantities and of superior quality.

The description and quality of the weapons and

implements is of vast importance in war; and between two armies success may be greatly influenced by the superiority on one side of the arms and ammunition used.

During the last French wars, that is between 1794 and 1814, the British service enjoyed a striking advantage in the mechanical arrangements of their field artillery, which was so manifestly superior as to have been copied after the peace by every country in Europe.

There is no doubt that very many manufacturers in Great Britain *could* turn out as good muskets or cannon and gun carriages as could possibly be desired; but if the supply was to be dependent on that resource, and large quantities required to be rapidly provided, the result would inevitably be a great proportion of articles of inferior quality, and very probably a delay in the necessary timely supply in quantity.

In addition to a provision in arms for every man enrolled, there should be a reserve in store of 200,000 stand, ammunition for at least a year's war consumption, and a provision of equipments and stores in proportion to the difficulty or facility of obtaining them as speedily as can be required.

This item may be the more readily admitted because the expense, under well regulated arrangement, would bear but a small proportion to its great advantages, and would consist chiefly in merely an early preparation, and subsequent care

of what, under any circumstances, must be eventually consumed.

The complaint against the maintenance of a stock of arms, &c., on the plea that frequent improvements render them obsolete and inapplicable, is scarcely worthy of being refuted. We must always be possessed of the best article of the day, otherwise, as the law of human improvement is to progress, we might on this plea be deprived, *ad infinitum*, of the most necessary and useful objects.

Although fortifications to a certain extent would add greatly to the defensive capabilities of the country, they are less necessary than the men, arms, ammunition, and equipments.

It is, however, earnestly to be desired that the principal naval arsenals, Portsmouth, Plymouth, Sheerness, and Pembroke should be put into a state to enable them with small forces to resist for a moderate period any sudden inroad. To these should be added Dover, and the passage of the Thames.

It is the more desirable to effect this object as, at each of those stations, a great deal has been done, and consequently by completing them from their present state, a great effect would be obtained by comparatively moderate means.

Portsmouth and Dover would not only be important spots to be thus secured, but would afford most valuable rallying points against invasion.

In thus venturing a slight sketch of the principles that might be adopted for providing a *minimum* amount of resources, to avoid the horrors of an effective invasion of England, it is by no means to be supposed that arrangements to that extent would suffice to place us in an attitude to be prepared to meet the ordinary circumstances of a war.

While they may be calculated to save the mother country itself from sudden and absolute conquest, other distinct and early measures are required, and means must be maintained, to enable us to protect our trade, foreign possessions, and general interests abroad and at home; that subject, however, involves questions that have not been contemplated in drawing up this memorandum; but they are to be treated in the same way, weighing the value of the interests to be protected against that of the smallest means that can be devised for their security.

The military condition of Great Britain, as regards its very existence as a nation, is now absolutely awful!

Should serious differences arise with France, under our existing circumstances, the first proceeding of the government would of course be to inquire of the authorities at the head of the navy and army, what means are available, or quickly to be made so, for carrying on hostilities. I will not presume to give an opinion as to what

might be the feeling of the *naval* authority; but the answer on the part of the *army* would inevitably be, that we are totally unprepared—that we could not be in a state even to resist invasion, much less protect other essential interests, for a twelvemonth; and consequently an earnest recommendation would be made that war should be avoided by all means, and *at any sacrifice!*

May 1850.

CHERBOURG.[1]

This is a most interesting document: proposing, in the present distressed state of the finances of France, to engage in an expenditure of £272,000 for the *works of defence* for Cherbourg, it proves, that however peaceable the inclinations and policy of that country *may* be, its statesmen are determined to be at least *prepared* for war, and for a condition that must give them great weight in negotiations with Great Britain.

The avowed reasons given for this demand are,—

That "Cherbourg is the most important port in a military view in France; at 30 leagues from England, it affords means of holding in check that power, to which it will become more and more an object of envy."

That "it has over Brest, L'Orient, Rochefort, and Toulon, the immense advantage that it cannot be under continual blockade, on account of currents and prevailing winds."

That "the construction of the port has cost France seven millions sterling, exclusive of any works of defence; and that such an establishment, added to the ships, stores, and naval re-

[1] See *The Moniteur* of 2nd March, 1851.

sources it will contain, is of such incalculable value, that it is impossible to think of leaving it without the most ample protection."

That "Cherbourg occupies a position too threatening for offensive operations, not to be worthy of great efforts for attacking it. In case of war with Great Britain, the *least* effect it can produce will be to paralyse a portion of the fleets of that power, which must be engaged in watching it."

Great attention was paid to the improvements to this port, and very large sums expended in the times of Napoleon and Louis Philippe, which are now to be renewed.

In 1846 a project for defences was drawn up at an estimated cost of £768,000; since then, upon a reconsideration of local resources, and simplifying the system of works in the greatest degree, the estimate has been reduced to £537,000.

Two considerations lead to a great reduction even in that amount, for works of present emergency: one, the distressed state of the finances of the country, and the other, the less probability in present days, of an enemy being able to make a descent on the coast in sufficient force, and to remain for a sufficient time, to undertake an attack in form on the place on the land side; one defensive advantage being particularly stated, namely, the rapidity with which troops for its relief could now be brought down by railway.

It is therefore proposed that this measure should be confined to a powerful system of defence against a naval attack, two of the forts for which purpose being so circumstanced as to be a portion of the seven projected for the land defences also.

On account of the propriety of not pressing on constructions of this nature (which are chiefly among water and rocks) too rapidly, it is proposed that the execution should occupy ten years.

It will be very interesting to obtain the report of the commission which will have the consideration of this proposition, when it shall be promulgated, and an account of the nature and degree of opposition, if any, that it will meet with in the French chamber. And for professional information, I should be very glad to have the best printed plans of the place that can be procured at Paris and Cherbourg, and copies of the several preceding laws and documents referred to.

There is matter for anxious reflection in this French project, from which I wish we could take a lesson.

Our naval arsenals are of far more importance to us than Cherbourg can be to France, and in greater danger of being attacked; while we have much more need of ramparts and batteries to compensate for the deficiency of regular troops, and to afford a chance to militia and volunteers, to make head against the more organized forces that would invade us.

Portsmouth, Plymouth, Sheerness, and Pembroke, with great natural advantages, are still in a wretched state of defence; but so hopeless is any endeavour to obtain an improvement in them,

that the Ordnance have discontinued even asking for it, and it is only by the personal *fancy* (as I presume it will be deemed by others in high authority,) of Lord * * * that a small provision is made in this year's estimate for Portsmouth and Milford Haven.

It is rather a curious coincidence, that about the same sum that the French are now requiring to be authorized for defences on a very reduced scale for Cherbourg, has been stated by me as desirable for defences on a large scale for Portsmouth; and while they boldly demand a pledge of a law for incurring the entire expense, we are commencing on a partial undertaking of one-seventh of that outlay, under a vague hope that after the lapse of years, some future Lord * * * may authorize perhaps another seventh.

It is to be understood that every part thus added, is a complete work of itself, and by so much affords a degree of improvement to the condition of the place.

There is nothing more dangerous in warfare than to despise your enemy: or, what is tantamount to it, to entertain an overweening estimate of your own prowess and powers.[1]

[1] *A Treatise on Naval Gunnery*, by Lieut.-General Sir Howard Douglas, Bart.

It has been openly declared by high military authorities, that this country is in so unprepared a state as regards its military resources, while France is so much the contrary, that whenever a war shall break out, we may expect the most disastrous consequences that it is possible to contemplate.

And how is this assertion met? Not by disproving it in fact; not by showing the extent of our preparations, and that they are sufficient, or can easily be raised in sufficient time; but by vapouring bravados and self-delusion, that since the time of William the Conqueror, no foreigner has been able to make an impression on the British territory; that we always have beat the French by land and sea, and never more decidedly than during the last war; that our spirited population would rise up in hundreds of thousands, and soon drive the invaders into the sea; and *therefore*, that there is not the slightest ground for apprehension, or for a thought on the subject.

We will admit most cordially, that there is in the British nation a proud determination to maintain its independence, such as would always induce it to make wonderful efforts against any who would encroach upon it; that we are provided with ample general resources; and that there is an energy and deliberate courage in an Englishman that adapt him for a first-rate soldier or sailor; but these compose only the raw materials, which

must be worked into shape before they are fit for use.

If we look to preceding times, we shall find that we did not trust implicitly to our being the finest fellows in the world, but thought it well to give those fine fellows as many advantages as we could. Cromwell did not content himself with desiring his enthusiastic soldiers, to trust in "God" only, but he added the recommendation, to "keep their powder dry!"

While acknowledging the superior character of our men, we hold it as no degradation to avow that we are indebted for the magnitude and constancy of our successes by sea and land, during the last war, to their superior proficiency in their art, and their superior equipments.

These, therefore, must be maintained, if we would wish to retain our pre-eminence.

Confining ourselves in this article to the naval service, to which the book before us is chiefly devoted, let us see how the case stands.

For ages we have been pre-eminent in the numbers and skill of our seafaring population, and have turned that excellence to the most important account on occasion of every war.

We had only to establish a superior force of men-of-war in a state of readiness in our ports, as machines, and the manning, with practised and efficient seamen, was speedily effected from the merchant service and fishermen, who were in a short

time given every instruction and organization that was required, in those times, to make perfect men-of-war's-men.

Seamanship was in fact the all in all to gain a superiority in a naval action, against anything, except an overwhelming amount of numbers.

Since 1815, however, some important changes have been made, that greatly tend to lessen our advantages.

1. The raising of men by impressment has been so vehemently denounced, that it is doubtful whether it could be readily resorted to, even in the utmost emergency, while a voluntary recruiting would be far too slow for such a case; and the most precious time will be lost before we shall even have decided what course to pursue.

Our opponents, on the other hand, by their naval conscription, have men in sufficient numbers, trained in the most important elements, and ready at a moment's warning to man a considerable fleet.

2. The general adoption of steam power in navigation will have vast influence in naval warfare; our aggregate strength in this particular will no doubt greatly exceed that of any other nation; but even in the hands of the inferior power, it will be very effective in checking the means of annoyance of the superior.

Being most available when nearest to its resources, it is less favorable for prolonged cruises, than for short bursts and operations.

It will render the blockade of an enemy's ports a matter of great difficulty, and it will enable the weaker power to combine measures of aggression, with a degree of certainty unknown in former times, when so many well-devised plans were notoriously defeated by untoward circumstances of wind and weather; and when even under the most favorable, it was almost impossible to combine simultaneous operations from different ports.

3. The vast improvements made in naval gunnery since the last war, by making practised gunners of more value in action than able seamen, take from us a leading advantage that we have hitherto possessed, and render it a work of time to convert the best of seamen into a good man-of-war's man.

It is this last subject that is treated of in particular in the treatise now under our notice.

That a work on naval gunnery should be written by an officer of the *army may readily* be accounted for in this instance—the father of Sir Howard Douglas, if we mistake not, was the captain of Rodney's ship on the famous 12th April, and it has been confidently reported, first suggested the brilliant manœuvre of breaking the enemy's line.

Sir Howard himself passed the early period of his service in the Royal Artillery, of which he was one of the most scientific officers.

Under predilections generated by these circumstances, he turned his attention during the war to the want of knowledge in the theory and art of

gunnery in the navies of Europe, and compiled a number of suggestions for its improvement in our own service, which in 1818 were published. This is the third edition of that work. Elaborate as it is, there is nothing to be found in it that is superfluous or uninteresting.

In Part I are comprised the author's original suggestions for the "ORGANIZATION OF NAVAL GUNNERS." It is perhaps the most important in the book.

The system has been acted upon to a certain extent, and to such advantage, as to call imperiously for its extension, and for such amendments as seem to be required to obtain full benefit from it, one of more importance and of essential necessity being, how to retain men thus trained in the British service.

At present they are under an organization that does not seem to be the best calculated to obtain the greatest degree of advantage from the institution.

After being about a twelvemonth under instruction, they are engaged for five years, and transferred to a sea-going ship, which being usually paid off within three or four years, there remains a period too short for another regular tour.

At the end of the five years, becoming free, it is natural to expect that they will carry their acquired attainments to the best market, which may be in the service of other countries.

It is reasonable, before going to the expense of giving men what may be termed a professional education and training, that a longer period of engagement should be entered into; and by adding to that the superior advantages that professional acquirements are fairly entitled to, according to proficiency, there is little doubt but that this most valuable class would be retained in the British service by re-engagements, so long as their physical energies were equal to it.

Financial considerations are frequently brought to bear against measures for the real efficiency of the public service. This imposition, however, would hardly conflict with the views of even *ultra* economists, as this body need not be in addition to our naval forces, but only a component part of them.

There is one startling assertion made by Sir Howard, namely, that "six years are required to instruct land-service artillerymen, and render them practically efficient."

This is strongly expressed, and must mean that they continue to gain in proficiency during a six years' length of service, and not that they are practically inefficient up to that period.

Part II. commences with an admirable Abstract of the Theory of Projectiles, which is continued to page 83.

From thence to the end of the work are a series of practical details and considerations with which every naval man should be thoroughly conversant.

They will convey useful instruction to every officer of the army, and are not without sufficient interest to be perused by any general reader.

In page 86 doubts are expressed, and as it appears to us, not without good grounds, whether the prepossession for heavy guns may not have been carried a little too far, so as to place vessels where such a system has been applied in the greatest excess, under "disadvantageous circumstances when opposed to such as, though equal to them in size, carry a greater number of guns, and which, consequently, possess a degree of superiority from the power of making a plurality of discharges in a given time, and from the facility with which the less unwieldy guns may be worked."

The effect of firing double and treble shots, of windage, of the length of guns, of the recoil and preponderance, of wads, penetration of shot into materials, grape, the form and gravity of shot, with many other details regarding the service of artillery, are minutely investigated and explained.

In the article of bored-up guns, the reasonings do not appear to us to be very satisfactory.

They are all founded on the supposition of their being applied to the service of solid shot, and the consequent serious defects occasioned by the want of proportion of metal in the gun to resist the effort of the charge and weight of projectile; whereas, the system which was really founded by Paixhan, although his merit is rather slurred over,

was that the re-bored guns should be applied to hollow shot, by which the equilibrium weight could be adjusted, and the advantages gained of lighter guns and shot, while the latter would be of larger dimensions, a quality to which much importance was attached for sea service.

The re-bored guns may be an expedient, and inferior to guns cast expressly on the same principle, or it may, on more recent consideration, be determined that solid shot of inferior dimensions are the most effective ; but the real qualities of the re-bored guns, or lighter ordnance, to carry hollow shot exclusively, are not quite fairly stated.

In the article on the new foreign rifle-muskets, we cannot at all agree with the author, in the low estimate at which he values them.

We cannot possibly understand how it is possible to under-estimate to such a degree, the substitution in the hands of every soldier (for of course they will become general) of a musket that it is proved will fire with more accuracy at 800 and 1,000 yards, than the present arm will at 200 and 300, and with ample force.

It may be said that it requires practice and skill ; but no amount of skill can produce better effects with the other ; if laid with mathematical precision, the shot is not to be depended upon beyond very short ranges.

Neither does it appear that the practice need be excessive, to obtain, with the new arm, very con-

siderable proficiency in firing at long ranges, nor that in the hands of those very slightly practised it is not far superior to the old musket.

It is argued that spherical case from field pieces will be more than a match for clouds of sharpshooters with this weapon—from this we must dissent.

The sharpshooters would, of course, be greatly dispersed, each behind any little cover that might be available, or, at any rate, by no means in such compact order as to present an opening for much effect from the spherical case, or shot or shells, while the artillerymen serving the guns must necessarily be concentrated, and perhaps with their horses exposed, so as to form an admirable target that could hardly be missed.

Supposing, however, the contest to be more in favor of the artillery than we are inclined to admit, still it must be borne in mind, of how much less consequence would be the loss of the sharpshooters, who could be readily replaced, than the casualties of men and horses at the guns.

The same reasoning applies in the case of the cavalry, which is relied on to oppose men so armed. It will present a mark that can scarcely be missed. Its formations for a charge will be far more difficult in open ground, and must be at greater distances than at present.

Indeed, we consider that this superior power given to infantry, will reduce the influence of

artillery and of cavalry in action in a great degree. This affects the *amour propre* of the enthusiastic artilleryman, and has perhaps produced, unconsciously, these (as they appear to us) fallacious sentiments.

The forced reasoning on this subject is carried so far, that, on reading the following passage, one might be led to believe that a general, having troops armed with muskets of such improved construction, would absolutely be worse off than his opponent with the present comparatively wretched concern.

"The general, who, according to the proposed scheme, had hoped, by infantry armed with rifle muskets, to drive artillery out of the field, and overpower infantry and cavalry in a general skirmish, will only commit the serious error of bringing on a general action under circumstances highly disadvantageous to himself."

Why the general is to put himself under disadvantageous circumstances, because his troops have a superior equipment, is difficult to understand.

Then follows a long argument about the precariousness of hitting the mark at such long ranges as 800 or 1,000 yards; but it is founded on the assumption of the object being a single man, whereas it would never be attempted except at compact bodies covering a considerable surface, such as columns of infantry, bodies of cavalry or

artillery, masses such as have hitherto made no scruple of presenting themselves for lengthened periods at half the distance, so far as the danger of infantry fire would affect them.

It is stated that the bullets for these arms *must* be heavier than that of the present British musket, to produce the necessary range, accuracy, and force.

This however is disproved by elaborate experiments carried on in Switzerland of late years, where it has been shown, that very light balls were impelled with greater accuracy and celerity to short ranges than those that were heavier;—at between from 250 to 300 yards they were on a par, and from thence, as the ranges were increased, the heavier projectile by preserving its impetus longer, had the advantage; but that bullets much lighter than those of our present musket would make excellent practice at 800 yards, and at that distance pierce three deal boards of an inch thick each; and as Sir Howard seems to depreciate the attempt to use the musket for long ranges, even the very light balls would, on his scale, be quite efficient.

The subject is renewed in the appendix, after further information gained, but the conclusions the author comes to are scarcely altered.

He deplores any hasty attempt to vary from the implements that served us so well *forty years ago.* A very wholesome caution, but no argument against

an effective improvement already adopted by other countries.

Some useful descriptions are given of the construction of the carabine à tige, zündnadelgewehr, and the minié; but in the author's reasonings on the subject, there is scarcely a passage from which we are not disposed to differ.

"Rifles will never answer for line firing." Why not, if the arm is more perfect and the service equally simple as with the ordinary musket?

"The soldier, feeling he has in his hand a weapon which, used by a good shooter, is efficient at a great range, will have a strong inducement to expend all his ammunition in distant firing."

That is as much as to say, instead of teaching a workman how to use a good tool, keep it from him, because he will mis-apply it.

This novelty is still in its infancy. The proposed modes of attaining the desired end are various; all of them giving considerable advantages, but being all of them as yet subject to objections, we are afforded a good chance of entering with success into the competition if we will not content ourselves, as we now appear to be doing, with miserable copying.

After this digression, Sir H. Douglas returns to his legitimate subject, and is again excellent in his manner of treating the vast number of matters connected with it.

He offers many suggestions on desirable alter-

ations, which we may reasonably conclude to be judicious, from what his advice has before achieved in distinct improvements.

In an interesting chapter on the practice of "firing at sea," the different circumstances of the motion and relative positions of ships are carefully analyzed. It leads however to a reflection, whether the practice from the *Excellent*, which, with the marks fired at, is moored as in a mill pond, is all that is necessary to make a naval gunner, and whether it would not be an improvement to take these men out occasionally for the day in any cruiser which may happen to be lying at Spithead, to fire some rounds at the back of the Isle of Wight when there is some little sea and wind.

The *art*, it is true, is better taught when freed from those elements of circumstance; but the *practice* is essentially dependent upon them.

We are sorry to find several instances recorded, where researches for improvements in our very important naval service are so slow, partly owing no doubt to the parsimony to which all our warlike equipments and establishments are subjected, that we have been reduced in many to a tardy and humble following of measures of great advantage, long after they had been established by other powers. By a perseverance in such a system, they will constantly be in advance of us in the art of war. As samples, out of many, it seems that in 1851, we made successful trials on the practice of simul-

taneous loading, that had been adopted by the French navy as much as *eleven years* previously; and what is more strange, the original suggestion having been made by Sir Howard Douglas himself in previous editions of this very work.

And our 10 and 8 inch guns are professedly adopted to put us on a par with the French canons-obusiers.

The author promises a future publication on the application of steam navigation in war—a most difficult subject to deal with, but one that cannot be too deeply considered, as the power that shall more clearly anticipate the best manner of applying steam, in its infinite varieties, will most assuredly, by its previous preparations, possess a great advantage.

Since the general introduction of steam navigation, there has been no maritime war of sufficient influence to throw much light on its most effective use.

The best mode of employing steam power to vessels of war, is a problem of very great difficulty, and as yet most imperfectly understood.

To obtain high rates of speed, and a certainty in making good way through adverse winds and currents, a steamer can carry little beyond its engines, boilers, and fuel. Hence their principal application has been for mails, passengers, and a few light goods ; as such there is room for their profitable employment. Any armament given to

them, must be either very small for their size and cost, or at the expense of their power of locomotion.

In the days of sailing vessels exclusively, the armament of a man-of-war could be adjusted to the greatest degree of speed: hence the fully-armed man-of-war had not only superior force, but superior speed to the merchantman. With steam, however, it is otherwise: and the steamers of the great trading companies will find no difficulty in avoiding any man-of-war, under the present ordinary arrangement.

This disadvantage must be met by maintaining a class of men-of-war, where the amount of armament shall be made completely subservient to speed. To give them, therefore, any really efficient fighting power, they must be large; for the proportion of the entire stowage of a vessel remaining available, beyond what is required by its steam power, increases rapidly with the size.

These will form the flying squadrons, and like cavalry and light troops in the field, will act as the look out, and be formidable skirmishers. They will be most valuable during the progress and at the close of general actions, to draw off and cover the friendly disabled ships, and to follow up and annoy those of the enemy. In spite, however, of their rapidity of movement, they will be so delicately composed in every part, and therefore so much exposed to serious injury from shot and

shell, and so lightly armed, as hardly to be able to contend with the ordinary heavy armed men-of-war in an efficient state, aided, as they are likely to be, by a degree of auxiliary power.

The application of this auxiliary steam power to the largest class of men-of-war, is now rapidly coming into use, and great experience and anxious reasonings and researches will be requisite to fix on the best proportion of armament, steam power and sailing equipment, to make the most perfect men-of-war for all objects. It is probable, that before many years, there will not be a man-of-war in the service where the three are not combined.

These are the matters on which, it is presumed, Sir Howard Douglas proposes to treat in his promised work; and he will, no doubt, produce much that is interesting and valuable on the subject.

On Naval Gunnery he has here given us indisputably the best treatise ever composed in the English, or probably, any other language. He was the first to open the way to extensive improvements on this, to us, peculiarly interesting subject. His qualifications are so superior, he has contributed so much valuable information and instruction, mixed with so many interesting suggestions, that we shall be very anxious for the publication of any other professional works, which his active mind seems to incline him to undertake.

FLOATING DEFENCES.

The progress in the state of gunnery and steam navigation renders it necessary to reconsider from time to time, in the same degree, the principles of attack and defence of coasts and harbours.

Whatever improvements may be made in land batteries, their entire adequacy for the purpose of defence cannot be certain against the rapidity of steamers, and the facility of their manœuvring power, unless the passage to be defended be narrow and perhaps tortuous; but they may be powerful in combination with floating defences, which are peculiarly necessary in estuaries, in the mouths of many rivers, and in passages or inlets that are wide.

While floating batteries of some kind always form an ingredient in the demands and projects for the defence of every estuary, no well-defined practical mode by which they are to be provided has ever yet been prescribed.

The only distinct means hitherto prepared or decided upon are the block ships, fitted out for the purpose. They are large men-of-war, usually line-of-battle-ships, but considered to be of an inferior class for sea-going fleets, being, it is believed, selected in preference as quite sufficient for this object, rather more lightly fitted up than they would be as parts of manœuvring fleets, except in

their armament; and with smaller steam power, that would give but moderate rates of speed.

The objections to the block-ships, are :—

1. The large cost for fitting out and maintenance.

2. That it would be difficult to maintain them in other situations than the immediate neighbourhood of the naval arsenals, and consequently they would usually be wanting in other estuaries, where their services might be equally or more necessary ; and it is precisely in the internal waters connected with the naval arsenals, that they would be least wanted ; because, even in an active war, some men-of-war under different circumstances, which could be rapidly applied to this purpose, would always be found there.

3. That they would afford but little, if any, advantage over the enemy's men of war, presenting nearly as large a mark, and under the same liability to be sunk or burned, with their large resources collected in one mass.

4. That they are of great draught, and can only be applied to deep water channels.

5. That in war time they would absorb great numbers of men-of-war's men, precisely when there would be the greatest difficulty in obtaining them for the regular fleets.

6. In consequence of this last contingency, among others, these block-ships would assuredly be taken to sea to join the fleets ; their original object then would be unprovided for, while an

inferior class of men-of-war would be added to the fleets.

7. While "two or three block-ships" figure in all reports and recommendations for the protection of such waters as described, and are tacitly understood to be one requisite to be provided, very few or none would probably be forthcoming in time of need; and it is to be observed, with reference to these recommendations, that they would involve a provision for not less than twenty stations at home and abroad, as a matter of course, thus demanding a naval armament for that want alone, equivalent to a large portion of the standing fleet of the country.

It would appear, then, that the block-ship is altogether an injudicious arrangement for the present day, whatever it may have been when first devised.

The substitute that would now naturally suggest itself to every officer, would be, no doubt, that of steam gun-boats, or still better, the floating batteries with their sides coated with thick iron plates, which have been proved to be shot proof against any Artillery, but what is of a peculiarly heavy nature.

Although these have not yet reached the capability of good sea-going vessels, and consequently are not so applicable for attack, they may be provided with every requisite for defensive purposes, and would compose precisely what is most applicable

and desirable for that object, being more particularly available for it, because, under their present imperfections for going to sea, there would be little temptation to remove them from their station.

The only objection to them, but it is an important one, would be the large numbers required in order that every place should have a provision, the great cost of their preparation and maintenance, and the certainty that, although all must be prepared, yet in the far greater number of stations, their services would not be called for even throughout a war, while considerable preparation for them must be maintained even during peace ; and even these vessels would necessarily abstract, in some degree, from many resources in men, &c., that are peculiarly required at the breaking out of war.

Another means of floating defences that would, no doubt, be partially resorted to, would be the taking up of private steamers, which are now numerous in all the great estuaries of Great Britain, and their armament and equipment for the protection of the localities.

This, also, would have many inconveniences. Considerable time would be required, and many embarrassing negotiations involved in the arrangement—large expenses—very many of these vessels, in the event, would not be brought into any active service, although every place must be duly prepared with them ; the steamers so taken would be

at once abstracted from their habitual civil employment, to the detriment of the ordinary and profitable business of the country. And, after all, their proportions and build would most probably, notwithstanding every effort, lead to their being but indifferently adapted to warlike purposes.

While any of the above means would be resorted to when occasionally found on the spot, which would be generally at or near the arsenals, they could not, for the reasons stated, be universally or generally applicable; and, indeed, would very rarely be found at the commercial ports. The only manner, it appears to me, then, to provide this great desideratum to any practical effect, would be by *separating the battery from its moving power*, on the principle of a field-piece and its limber. This would at once relieve it from the great part of its expense, remove many of the difficulties, and might ensure a force always available, which, if not of the very best, would be very powerful.

The floating battery, then, would be constructed of any form, power, draught of water, with any modes of protection against shot and shells, or other aggressive action to which it might be liable, as may on thorough trial be found best for different classes of station; and being armed, might remain at anchor at very little cost, till its services are called for by any attack, or intermediate threat of it; at which period, its crew and gunners from the

local forces on the spot, would proceed to man it, and under previous occasional practice, would make it at once efficient and fit for action; these men returning to their homes and occupations as soon as the emergency should be over.

The moving power for these floating batteries would be the passage, tug, and other small steamers that are in abundance in all such waters, at least in Great Britain and Ireland. As no war can be carried on without a popular feeling in its favour, there would be no difficulty in making arrangements for the voluntary and zealous service of a sufficient number of these steamers for occasions of such urgent necessity; and the advantage of this system would be, that they would be always adapted to it, without the addition of any extra means whatever; and till the immediate period of being thus wanted, and immediately after their performance of the service required, they would be engaged in their ordinary occupations.

As a manœuvring force, while absolutely in conflict with an enemy, these batteries would be very inferior to the ordinary armed steamers, but their application may be extremely valuable, moored in advantageous positions, to and from which, and in occasionally shifting their berths, their moving power would be principally required. Any absolute necessity for their movements under fire would be rare; but even for such occasions there would scarcely be a lack of spirit to undertake the task,

the whole being under the guidance and encouragement of naval officers, aided perhaps by a few man-of-war's men.

Should this system not be at once altogether rejected as unadvisable, even on the above showing, it certainly would be desirable to ascertain by consideration, designs, and actual trial, the most advantageous form, construction, and arrangement in every particular, of a suitable vessel or raft for the purpose, to serve as a guide in their future establishment; the principle might be applicable to large or small, heavy or light classes.

It would be of great advantage if they could be such as, while ready for rapid conversion into armed vessels, might be employed usefully at other and quiet periods; if coated with shot proof sides, that would hardly be practicable, but if that quality were abandoned, the force being still valuable, that desirable object might no doubt be gained. It would be in fact only preparing the arrangements of a certain number of lighters to an applicability for this purpose, in the manner in which it is stated that United States' private steamers, on the great lakes of Canada, are constructed for easy conversion into armed vessels.

It is at the great commercial ports, that are within wide expanded inland waters, such as Liverpool, Glasgow, Hull, &c., where the constant presence of a flotilla of men-of-war, large or small, would be out of the question, that

such a system as is here proposed would be most applicable, and need not encroach upon the great Admiralty resources, so much required in war against any maritime power.

Even should no vessels or constructions be prepared specifically for the service, still, on the first emergency almost any description of barge, lighter, small coaster, or even canal barge, could be rapidly fitted for the purpose, provided the guns and appurtenances and ammunition were on the spot; thus, a first equipment would be quickly ready, to be subsequently improved according to the exigencies of the war.

Of whatever description the floating batteries might be, there would be little difficulty in making them, by boarding nettings, or better, by outriggers, which would prevent the approach of boats, and other devices, all but unassailable by any *coup-de-main*. Whether some simple means for setting a sail, to give some power of self-movement under particular circumstances, might be advisable, is a matter of detail in the arrangements.

Among the active engines available for protection against the passage of enemy's vessels into our roadsteads, harbours, and rivers, floating or slightly submerged mines are capable of becoming one very powerful ingredient.

There is a great deal yet to be done, to ascertain the details for their best practical application as to

form, size, loading, and general principles for use; but there are certainly many inconveniences, and some danger connected with the system of explosion by contact and concussion, as practised by the Russians, in some degree by necessity, where they placed these machines, namely, very far from support or possibility of close control. Their really powerful effect will be in such narrow passages as can be under close inspection and regulation; and where there can be no power on the part of the enemy to seek for, or to avoid them. Their ignition being effected from galvanic batteries on the shore, they will be perfectly harmless, and no impediment to the vessels of the defenders; and their positions may be accurately defined by the parties to fire them, although unobservable by the enemy; and it is believed that they may be so devised and placed, as to render the prevention of close contact with them almost impossible; even by night, contrivances may be conceived by means of which they can be used with effect.

Besides all these active agents, others of a passive kind might be introduced, that would prove great barriers to the approach of an enemy's steam vessels, which, in these times, are the means of aggression to be peculiarly guarded against.

Paddle-wheels might be completely obstructed by masses of strong pointed hooks of iron, floated inversely, like an inverted sharp-pointed grapnel, its arms having but little spread; such grapnels

moored by chains, made to give way at a considerable distance from them ; the anticipated effect to be either to tear away the paddle boards and connecting bars, or to bring grapnels and chains, or cables, to be entangled round the shaft—in any case, almost, if not entirely, to destroy the effect of the paddle-wheel.

But as the screw is rapidly superseding the paddle, and will probably, before long, do so entirely with men-of-war, means must be sought for to act more particularly against that mode of propulsion ; and this, it is conceived, may be effected by mooring, across the open channels of navigation, quantities of floating cordage, canvas, chains, or other tough, pliant material, with loops and eyes, &c., in close order, and occupying some width of space, which, in the passage of the vessel, would close in upon the screw, and be caught and entangled by it, with every prospect of rendering it helpless; such as has happened to screws by the fall of the vessel's masts and sails, or by picking up a hawser. The latter is of common occurrence, and frequently brings the machinery to a stand-still.

Lines of obstacles, such as here described, may be so placed as not to obstruct the passage of friendly vessels, clear openings being left for them, but so directed, and perhaps winding, that even if descried by the enemy (which would hardly be the case, particularly in smoke), they would lead him to peculiar exposure to the defenders' batteries, and perhaps to other dangers.

MILITIA AND VOLUNTEERS.[1]

There are three fallacies, connected with the capability of this country for defence against a powerful invasion, that are very prevalent in England, and that tend to lead us to a false sense of security;—one is, that if any attempt at invasion were made, we have hundreds of thousands of brave spirits, who would rush to arms, pour down on the rash intruders, and drive them into the sea;—the second, that the country of England, with its enclosures and hedge-fences is particularly favourable for the desultory warfare of an armed population and irregulars; especially if armed, after habitual practice, with rifles;—and the third, that our great financial means would afford us such advantages on the occurrence of a war, that it is the best policy to husband and allow to accumulate for that very event, amounts that are now demanded for a more constant state of preparation.

These fallacies are the more dangerous, because two of them (the first and third) are based on undeniable facts, from which, however, the most erroneous conclusions are deduced.

None can possibly doubt the indignation with which the whole of Great Britain would be impressed at any attack of its territory by a foreign power;—every cause of internal differences would

[1] [From the *United Service Magazine*, of March 1853.]

at once be stifled, and the most thorough unanimity would prevail against the invader. It would be absurd to waste words in proof of the spirit and courage of Englishmen when put into action; those qualities are undisputed; and that there would be any number whatever to stand forward willing to take the field in case of such an emergency, will be assented to by any who are well acquainted with the general feeling.

These are undoubted facts. Here you have the raw material in abundance, and of the finest quality; but alas! how different from the manufactured article,—soldiers—collected and put together with all the artistic combination and refinement of a regiment and army. You might as well present a great cotton spinner with some tons of iron, of however superior quality, and tell him that there is his steam-engine to enable him to compete with the foreign manufacturer, as bring masses of men in this state, to oppose a regular army.

How could their movements be regulated?—what confidence could they have in each other's proceedings?—how would they be provided with ammunition and other necessaries?—how fed?—they would devastate the country without producing any injury to their enemy, for they would fly like sheep before the smallest combined bodies of an organized army; nor is it any disparagement to our countrymen to say so, because they are the very same materials that make, to say the least of it, as gallant

and good soldiers and sailors as any in the world.

It is quite a delusion to suppose that the character of the general face of the country in England affords peculiar facilities for defence, and particularly for "*harassing an enemy by an armed population and irregulars.*" The roads are abundant and good, so that combined movements may be regulated in an infinite variety; the hedge rows, from which so much advantage is expected for defence, afford no real obstacle, but would act as a screen to those movements; all this is decidedly in favour of the well-organized army. The columns of the enemy would be brought to bear on the direction that their general thought most desirable, and would penetrate with the greatest ease through the scattered lines of irregulars. Even supposing that the latter knew where the attack would be made, and accumulated their forces there, the regular troops, in addition to their superiority as soldiers, can, by their compact order, always absolutely bring greater *numbers* into action, within a limited front, than their opponents;—thus they would make their passage through, and appearing in the rear of the broken intervening masses, would throw them into utter panic and confusion—so much for the front:—no subsequent attack upon the flanks and rear of disciplined troops, who have been so far successful, would be possible; it is some time before the dispersed and alarmed bodies

that have had their first confidence and hopes crushed, can be collected for acting in this manner; flying corps are left to counteract them, in force regulated according to the necessity of the case; these are supported, from time to time, by the reinforcements on their way to join the army in front, and thus would make effective occasional impression.

A few military executions on persons and property of offending districts, (a system *always* adopted in war against an armed population,) would add greatly towards freeing the invader from these annoyances.

In fact, the experience of military history will show that these energetic, popular demonstrations and actions, even in countries that are comparatively wild and well adapted to them, have never been of avail against the first inroads of powerful and fresh-invading armies, and only produce effect when, after a considerable time, the invaders are weakened and dispersed in covering a great extent of country amidst accumulating opposition.

So far from the face of the country in the south of England being favourable for internal defence, after a landing is secured, it is eminently the reverse. The only obstacle to traversing the country in all directions is the partial one of the Medway. The broad estuary of the Thames and lower Medway would greatly impede any movements on the right flank of the invader, while the only advan-

tageous fighting-ground that could be taken up by the defending army would be the range of Surrey and Kent hills, 30 or 40 miles from London, which certainly present fine positions, but are of very great extent. The numerous "*hedge rows*" and small enclosures, that are so much the theme of admiration, would be a perfect nuisance in all the preliminary attempts to check the advance of the enemy, because they would greatly reduce the advantage we should otherwise possess in our superior force of cavalry and artillery during all the first operations.

The third subject for undue confidence is any absolute reliance on our great financial resources ;—these are indisputable, and nothing is more true than the saying of some great general, that there were three essentials to carrying on war with success—the first was money !—the second—money ! ! and the third—money ! ! ! But you must have time to convert your money into arms, ammunition, men-of-war, armies, and fortifications. If a French army could be conquered, like Danäe, by a shower of gold, instead of volleys of shot and shells, we should be always prepared for them ; but, unfortunately, if that power is in a state of habitual readiness to make the attack, (which could, in that case, be effected within the space of a few weeks,) and we rely on our finances alone for our defence, it will be found that, even with unlimited means applied to the purpose, it would require at least a year be-

fore we could be in any state to resist the aggression, and then only imperfectly. Men-of-war, fortifications, arms, guns, and carriages, notoriously require time to be prepared. It takes at least a twelvemonth to make tolerable infantry soldiers, even when collected by degrees, surrounded by veterans, and under numerous experienced officers and non-commissioned officers; they are not thoroughly good till after two or three years' service—really efficient artillerymen take even longer. This, added to the time for recruiting, will explain why national defences cannot be raised in a day, by any amount of wealth: the organization of a naval force is at least equally slow.

A question may naturally arise from these arguments, whether it is meant that we ought to maintain complete military establishments and an army of regulars on constant war footing, to meet the chance, however remote, of being attacked:—the answer will be, certainly not, to so great an extent; but so long as large threatening means of assault are held over our heads, those for self-protection must be somewhat in proportion. For offensive warfare, the means may be safely left until the occasion arrives; no great evil will be created by the delay that must occur in preparing them; but for self-defence—for opposing the blow that may be aimed at our very existence, we ought to be always thoroughly ready; and the problem to be solved is, how to gain that essential object at

the smallest expense, and at the least disturbance of our ordinary peace social system.

It has been explained that, however well-inclined the masses may be, something very superior to their sudden turning out in arms is necessary to oppose a regular army in the field; and a militia has been devised as a medium course, and, if duly applied, has many advantages. During peace this force will only be withdrawn from their ordinary occupations for a limited period, and that period, perhaps, selected from the time when there is least pressure for their work. They will then cost, probably, not more than about a fifth of the same number of the line. Their compensating value will vary according to circumstances. Until they have been twice or three times assembled and exercised under arms, (that is to say, for the first year after being enrolled,) their worth, if by themselves, will be nothing for *field* service; they will from that time remain stationary in value until called out for *actual duty*, when they will gradually improve. At each stage, however, their efficiency will be very much according to the proportion they may bear to the numbers of the line with whom they shall be associated. When first called out, if acting in close co-operation with about an equal number of regulars, they will be good for something; after being constantly out, and doing the duty of regular soldiers for about a twelvemonth, they will arrive at the highest state of utility of

which they are susceptible; and then, if acting with regular troops in equal proportions, or better still, in the proportion of one of the former to two of the latter, their value may be estimated at half, or at the most, two-thirds of an equal force of the line. The cost of maintaining them will be in somewhat greater proportion, but the advantage gained will be in the saving during peace; and the only danger, the interval between their first being called out for actual duty, and the time of bringing them to a practical state of efficiency.

It may be thought by some that this is undervaluing the militia. During the last wars with France, the regiments of the militia were as well equipped as those of the line, and went through a field day in as respectable a manner; and many estimated them consequently as equal in every respect, and conceived that this favorable view was confirmed when the men from them volunteered for the line, were sent abroad, and were so immediately brought into action, that they were engaged with their militia jackets still on, and found to vie in conduct with the regular linesmen; but this may be explained by their being put at once under officers, and non-commissioned officers, who knew their business, and under all the old established system of the regulars, in all which they were in a very inferior condition as militia.

The principal disadvantage under which the

militia will labor, to impede its progressive improvement, and finally to check its arrival at any degree of perfection, will be in the want of proper qualifications of its officers; and in the earlier periods, of its non-commissioned officers.

During the continuance of a very prolonged peace, the officers of militia bore an honorary commission only; never being called out, they had no occasion for, and consequently had not habitually the slightest knowledge of, even the first acquirements of a recruit; they were of all ages, and of all pursuits and engagements; in fact, almost the only inducement they had in accepting a nomination, was to obtain the privilege of wearing a uniform at court, and on some other peculiar occasions. As the establishment gets into more business habits, the greater part of these gentlemen must abandon their stations, but, in the meantime, they cling to them as long as they can; and all those who are thus hanging on, without a prospect of being able finally to persevere in the service, become a peculiar clog on it, since most of them must feel an indifference or inability to forward the progress of their corps; and even the few who may be able and zealous enough to assist, will be obliged to withdraw from time to time, and perhaps at periods when they might be most useful.

In taking a commission at the present time, some improvement will be made; every gentleman who now enters must be prepared to sacrifice a

certain number of weeks, and perhaps months, in a year, to this duty, and to be liable to be called out for continuous service ; the greater part must consequently be ready to give up the time necessary to meet that engagement, and will also be so far aware of its nature as not to undertake the task, unless they are of an age and bodily power to consider themselves equal to the exertion that will be required of them. Still it will not be their profession, and even the most anxious and zealous will find it very difficult to qualify themselves for bearing that part in the service which is necessary for bringing their corps into a respectable state of efficiency. Even these, however, must be considered as exceptions ; the greater number will, of course, be satisfied with being privately drilled to a capability of marching in the ranks, and to learning to place themselves in their proper positions, and to give the few necessary words of command ; but without imbibing the knowledge of the whole business of a soldier, the duties of every subordinate rank, and the essentials that distinguish those who are first-rate from those who are slack and relaxed in their order; or without at once being able to point out why and in what particulars, one regiment is superior to another, and consequently to apply whatever may be wanting for the improvement of their own.

The fact is, that the army is a profession, in which it is far more difficult to be really useful

and distinguished than is commonly supposed; particularly for the officers, even when only regimentally engaged. They require a thorough knowledge of the business of the soldier, from the veriest recruit to the old established veteran; for the scale of efficiency through every detail will be regulated by the readiness with which the officer will detect the slightest infringement on what is most correct. Much attention is necessary to matters and details of interior economy and arrangement, and tact and judgment in the treatment of soldiers, to enforce thorough discipline by a proper degree of kindness and courtesy, mixed with firmness, which only habit, observation, and aconstant life in camp and barrack can produce.

Militia officers, who take to the service as a temporary resource, (except the few who may have been previously in the army,) must necessarily be deficient in these respects; and by so much must a militia regiment, even at the best, be inferior to one of the line. Much, however, may be done by the officers individually to lessen the evil.

It is incumbent on every man of good feeling, who undertakes any charge, (particularly one involving the interests of society in general,) to exert himself to fulfil his duties to the best of his abilities; and it is to be hoped that when, on reflection, the new officer of militia is sensible of the extent of research and labor that he must

undertake, to render himself competent for the task, he will not shrink from it.

The attainment is not easy of accomplishment; schools there certainly are, but only to be resorted to by trouble and sacrifices; the course to be recommended is an intimate association with some regiment of the line, and earnest attention to the whole tenor of its proceedings and arrangements. But such a meritorious and spirited determination will be attended with difficulties;—first, as a source of expense, which must be voluntarily and gratuitously incurred; and then, the introduction to a corps of officers, who will hardly receive, so graciously as to be agreeable, all those who may be formally brought into their society with a view to the intimacy of a frank intercommunication of ideas and information:—this will restrict the extension of this advantage to the few who have the will and the means, as well as an opportunity of being introduced to an old corps in a manner that will not be unpleasant to their feelings as gentlemen; these can be but few, and the rest, even with the best disposition, can only make the most of such opportunities of improvement as may be afforded them.

While any reliance on the spontaneous rising of an armed population, or *levée en masse*, at the last moment, would be futile, and even to be deprecated as worse than useless, still the principle and spirit among the people, on which the idea is founded, may be turned to good account under

regulations and restrictions, by bodies enrolled under the system of the volunteers of 1804.

They consisted of regiments and corps of which the individuals were associated voluntarily in different localities, submitting to a certain degree of the soldier's drill and exercise, sufficient to fall readily into ranks, and to perform some very ordinary manœuvres in a loose manner; arms, accoutrements, and ammunition, were provided for them by government, but it is believed that they had no pay, and that their uniform (of a plain character) was furnished by themselves.

Any movement in favor of this establishment has universally been on the occasion of excitement arising from the apprehension of some approaching danger; a time consequently not affording an opportunity for a calm, considerate judgment being formed of the best manner of applying it. Numerous applications and offers are thus occasionally made to the government to raise volunteer corps, as was the case about two years ago, when the novel introduction of a general system of improved rifles for troops, would, it was considered, have rendered such bodies peculiarly valuable: but, being under no preconcerted regulation, the various propositions, dissimilar in their details, would have necessitated a distinct negotiation for every corps, and prevented any encouragement being accorded to them; they consequently fell to the ground.

The great error that exists in considering the application of this peculiar force, is in assuming that they would be able to *take the field:* any such attempt would put them at once into the category of the irregulars above described. If so employed, they would be utterly worthless, and indeed worse: they would absorb means that could be ill spared, in arms, ammunition, provisions, quarters, and probably pay, without being of any compensating value.

The imperfections of the volunteers as military bodies would be considerable—they would be composed of a mixture of men of various classes, ages, qualities, and professions, forming a body without any of the attributes of soldiers, excepting a little drill, and that which has been recently thought would be a substitute for every other acquirement, being more or less good shots with a rifle;—the engagement, however, being voluntary, and every party having either his family or private concerns to attend to, there would be a vast number of absentees when a demand really occurred for their services; and the rest, with no discipline, self-confidence, and unequal to the work and hardships of a campaign, would be speedily discouraged, and totally unfit to manœuvre, or be mixed up with regular troops, or to be opposed to them in actual service.

Another evil of too general a use of the volunteer corps, would be on the score of political

economy;—it would be employing an expensive material, for what would be equally good with a cheap one. The qualifications of an intelligent laborer are sufficient to make a good soldier, and it is that class which is chiefly attracted by the moderate prospects of a soldier's life; the few restless spirits who, as artificers, or of station and education superior to laborers, occasionally enter the service, are very useful as materials for non-commissioned officers, and to instil a tone of intelligence among the whole class. The composition of the militia will probably be of the same character; but the volunteers would be generally of a superior order of society, and consist of men whose time, in their ordinary occupations, would be worth from five or six shillings to perhaps almost as many pounds per day; the periods therefore given by them to this extraneous service, would tend to a great interruption of business, and to a considerable sacrifice of national wealth.

It is somewhat interesting to find this subject adverted to in the preparations for resisting the Spanish Armada, in 1588, where it is said, in a regulation from authority, to have been found that "small or no benefit grew from employing substantial farmers and wealthy householders; who, having been daintily fed and warmly lodged, were less able to bear the hardships and duty of the field; while, during their absence, there was great

loss to the country in their crops and concerns. Their personal presence might therefore be dispensed with, on their finding an able substitute."[1]

The principal and most useful application of volunteer corps, would be by a well-considered system of local organization and training, exclusively for action in their own and very neighbouring districts, in case of the extreme emergency of an attack upon them. Within two or three miles of any port, or town of any importance, it might be hoped, that from 600 to 1,000 such volunteers would be ready to turn out, some of them practised to man any batteries that may have been constructed for their protection; and within ten or twelve miles, that is, in a few hours after, at least as many more. These, under the regulation and control of some officer of experience, would afford great security against the desultory attacks of any but considerable armaments.

In time of war, every part of the entire coast of Great Britain and Ireland will be liable to marauding incursions by the enemy's cruisers, in more or less force. These may be effected either by running into harbours or anchorages, and seizing and destroying ships and property without landing; or by landing bodies of from 200 or 300 to 2,000 or 3,000 men, for more systematic effect and injury. The regular army and militia would

[1] This alternative was then required because the service in that case was compulsory, and not voluntary.

be quite unequal to afford protection so universally as would be required to resist these incursions; particularly if there was the slightest apprehension of a more serious attack, which would call for their concentration in other parts. Bodies therefore, of the description of a sedentary militia, or of these "volunteers," would be the least inconvenient and least expensive mode of obtaining this protection; it would interfere in the smallest degree with the ordinary occupations of the men, would not take them from their homes, and, being for local security, the expense might reasonably be thrown chiefly on the localities, and made rather permissive than obligatory—the State only affording such general assistance as would tend to the best organization and uniformity of system, with the requisite provision of arms, ammunition, and accoutrements.

The inferiority of these bodies as soldiers, would probably be made up by the superiority of numbers that could be collected in a few hours, and which would be forthcoming in proportion to the population, and, consequently, the importance of the situation to be protected.

Such a system would appear to be very necessary in time of war, but still would require consideration; and must be carried out with caution, and within certain limits in detail.

There is, however, a class of volunteers who have made propositions which might safely be

accepted, even with hopes of turning them to account for *general* service:—it consists of those who are prepared to bear all the expenses themselves, requiring from the government neither pay nor clothing, arms nor equipments; but merely authority to be enrolled, armed, exercised, and generally organized. These, as may be supposed, must be persons in easy circumstances; many of them of spirited, ardent, and patriotic dispositions; while some, with perhaps a slight tinge of those feelings, are attracted by the proposed neat green uniform, and the excitement of practice with the rifle, a necessary accompaniment to all these propositions.

Some good, and no possible harm, can be well anticipated from accepting these offers;—a certain number of individuals of all these bodies would, of course, be forthcoming in the hour of need, and they would be the best; and associated with larger numbers of the line, and distributed in the most favorable manner, would, no doubt, distinguish themselves, and become valuable; while the very act of such associations would tend to encourage the military habits and military knowledge in which the British nation is so deficient.

The chief defects of such corps would, probably, be very materially lessened, if they understood what they were:—for instance, there are persons who enter upon this engagement, without contemplating well what would be required of them

to be really of service in case of emergency, and without making up their minds, and preparing themselves in every way to fulfil it. They would, no doubt, learn every necessary drill and exercise well, and probably become very superior marksmen; but they ought to be quite prepared to join their corps on the first alarm, to abandon their families, properties, and business to the care of others;—to be provided with every marching equipment, and submit for the time to the deprivations of the common soldier; for it would be utterly impossible to admit, in a line of march, of an *officer's* train of baggage for every man who carries a musket, or of their straying away from their brigades, in search of comfortable quarters. They must submit implicitly to orders, and not take advantage of their superior education and knowledge, to dispute the propriety of arrangements made by the professional commanding officers.

All these would be hard trials to gentlemen, who had been accustomed to "live at home at ease," but it is manifest, that without a compliance with them, their presence would be of injury rather than benefit to the operations.

What would make the most eligible corps would be, if possible, to have them composed exclusively of young single men, who would be without incumbrances to check them in rushing to arms when required; and whose ardour and spirit would carry them through every hardship and danger:

samples of this effect have been notorious on the continent, when the several countries have been in danger, in the conduct of the university and other students:—and it is much to be regretted, that the university regulations at Oxford and Cambridge would not allow the superior corps to be formed, which was offered by the young men at each.

There is one circumstance in the progress of the art of war in the present day, that will most probably render such bodies (when duly mixed with regulars, and under the most favorable system) of far greater value than they could hitherto have been,—which is, in the properties of the new musket:—hitherto troops were valuable in proportion as they could be brought to face their enemy in the best order, *at very close quarters.* All irregulars, very young soldiers, and particularly bodies without good officers in whom the soldiers had confidence, were certain to get into confusion on such a hard trial. Although this property will still have very great influence, yet there cannot be a doubt but that the new weapon will reduce it; and great service may be rendered by those who may be able practised marksmen;—so that as skirmishers and light infantry, in all the preliminary movements of an action, these select riflemen may be at times of much value, and by degrees be accustomed to the closer order of contest, instead of being necessarily brought into it at once.

Without interfering more than necessary with the freedom of arrangement to which such corps would be entitled, a few points that would increase their efficiency might be urged upon them; such as the absolute necessity of their adopting a piece of the same bore as some one in use by the army, and that would take precisely the same ball and cartridge; so as to enable them to obtain their supplies of ammunition from the general stock in the reserve carriages. It would be better if the piece were of the same length and general construction. Government might, indeed, reasonably allow them to be obtained from their own armories at the contract price; while at the same time, there could be no harm in those individuals who wished it, and would incur the expense, having their arms, although of the same general dimensions, more highly finished, stock and sights applied that suited their own fancy, &c.

Another point would be, to recommend their obtaining as many old officers of the regular army as possible to direct and lead them;—and a third, to raise corps rather by companies to be attached to regular regiments, than by battalions;—there would be some sacrifice in pride, perhaps, in so doing, but they would derive confidence from the certainty of being well supported, and have an opportunity of distinguishing themselves, by being so closely associated with bodies knowing their business;—by sharing with the

troops of the line, they would be more regularly provided with every requisite, than when thrown upon their own resources and arrangements; and much labour and difficulty in the commissariat, and other departments, would be saved.

On the whole, militia and volunteers, under duly considered arrangements, and with a proper degree of anxiety on the part of their influential members to use their exertions towards obtaining the best results, will afford powerful means in aid of our self defence; but it must not be forgotten, that the fate of the country will rest on a very insecure basis, in the event of having to fight the battle in our own land, unless the *regulars* shall be in sufficient force to sustain the main brunt of the operations.

REVIEW OF SIR F. B. HEAD'S DEFENCELESS STATE OF GREAT BRITAIN.[1]

When we take up a book written by Sir F. B. Head, we are sure of being enlivened, and shall probably at the same time derive instruction from its perusal. He carries us through the vast complex arrangements of a great railway establishment, with its hundreds of thousands of passengers, and tons of goods; or of the General Post Office, with its millions of letters, all to be dispatched or disposed of in an incredibly short time,

[1] Inserted in *Bentley's Miscellany* of Dec. 1850.

and as our author takes care to provide us with occasional refreshment on the way, we insensibly imbibe a mass of sound information with the agreeable sensation of a pleasing draught.

> " Cosi all' egro fanciul porgiamo aspersi
> Di soave licor gli orli del vaso,
> Succhi amari, ingannato, intanto ei beve ;
> E dell' inganno suo vita riceve."

In the heavy task he has now undertaken, we find the same quality of food provided for the public appetite; and we question whether the attention to the defective condition of our defensive resources, which the efforts of many naval and military officers of eminence, the Duke of Wellington inclusive, have failed to excite, will not be awakened by this popular writer.

We must, however, peruse with some caution his present essay. The question under consideration is no other than whether this kingdom, with all its properties and dependencies, does, or does not, stand on the brink of a precipice, from whence it may any day fall into an abyss of utter destruction. We must not be led by any torrent of the most powerful or sarcastic oratory to treat with indifference such a position, strongly enforced by competent authorities. If only to relieve our minds from the terror it is calculated to excite, let us satisfy ourselves by searching inquiries of its truth or error.

The conclusion arrived at by Sir F. B. Head,

and those of whose arguments he is the exponent, is simply this :—

That, in the event of a war with France, the people of that country have the will, the intention, the devised project, and the power to invade this country, and to possess themselves of London by a *coup de main*, while under our present system it is utterly impossible for us to offer any effectual resistance.

To render this conclusion convincing we must satisfy ourselves that it is correct in all its parts, for the failure of one link of the chain would be fatal to the whole. And here, we think, we may narrow the ground for discussion, by striking off an argument which has no foundation whatever, but which is prominently put forward by the faithful guardians of our purse, who would willingly cushion the whole question,—*viz.*, that there is no desire to quarrel with us on the part of the French, and that after thirty-five years of peace, it is unreasonable and ungenerous to anticipate war. Against this presumption of kindly feeling as regards the *nation* (for in individual intercourse none will dispute the courtesy of the French) we have the tone of their newspapers, of Thiers, and other leading politicians, of Scribe, Alexandre Dumas, Béranger, and many equally popular writers, all full of animosity and abuse where England and the English are concerned: while the anxious attention we see directed to the

naval and military establishments, exclusively applicable to a war with this country, even under the greatest pressure, manifestly proves that France herself does not calculate on eternal peace.

But, to make the argument good, it must be shown that a war is not only improbable, but impossible; for, if possible, we should surely be prepared for it, as we would be provided (under the apt illustration in the work before us) with a fire-engine and water-plugs, to preserve our property from the possibility, though extreme improbability, of a fire.

As regards the question of probability or possibility, we have experienced, four or five times, during the boasted period of peace, a crisis when an insulting expression, or an unreasonable demand on either side, could have produced an instant war; and if, on those occasions, we have been mercifully spared, by the moderation of the existing government, we can scarcely anticipate that some wrong-headed individuals, or violent popular agitation, may not one day lead to a different result.

Assuming, then, that despite the heroic moderation of France, and the self-interested moderation of England, a war, by some unaccountable contingency, *might* possibly occur, and that the French should, for the first time, be led to consider how they could most speedily bring it to a favorable issue; we have then to examine whether their

proceedings during the preceding period of peace have, as asserted, placed them in a position to produce that effect. We have also to ascertain what is the nature of our available means successfully to contend for the object of the conflict, whatever it may be; and, more particularly, with what means of resistance we may be provided against the danger of invasion, to which our author so confidently asserts we are exposed.

The inquiry is not of a difficult nature, for, though the necessary information must be chiefly obtained from professional men and from professional sources, it may be made sufficiently intelligible to civilians of sense and judgment to prevent their being misled by the bias or self-aggrandizing spirit of the informants.

We have hitherto enjoyed the pleasing delusion that "Britannia ruled the waves," and that the old wooden walls of England were sufficient to preserve her from the danger of invasion; but, when brought seriously to consider the subject, we shall find that, like other RULES, that of Britannia may have its exception; and that the sovereignty of the sea is not to be maintained even by such a power as England, with all its advantages of ships, seamen, and money, without adequate arrangements. Of the nature of those arrangements we have a melancholy detail, not only on the authority of our able and lively author, but on that of staid experienced naval officers, some of

whom witnessed our triumphs in the late wars; they all tell the same tale, one that has never yet been denied. While we are thus accused of apathetic indifference, or of carelessness, in casting away the advantages we possess, the French occupy themselves unceasingly and energetically in making every effort to avail themselves of the advantage afforded them by our neglect, and to come forward with startling effect when occasion shall offer.

Notwithstanding the *prestige* that every British sailor notoriously entertains for the vigour and power of his own profession, every officer of the navy is forced to the humiliating conclusion, disguise it as he may, that *unless an essentially different course is in due time adopted and pursued, the French will enter upon a war with a decided naval superiority;* and may for months, if not for years, maintain it in the Channel or in whatever part of the world they may prefer.

What would be the effect on our ships and commerce, as well as on our interests and possessions beyond the sea, we are not now called upon to inquire; our subject points to a nearer and dearer interest—that of our *home.* The loss of a limb may be painful and crippling, but at least let us guard our head and heart, both of which may be powerfully assailed if the road is thus opened for the attack.

Before quitting this naval branch of the question,

we may advert to the author's omission of any mention of the resources provided by the coast guard for manning our ships, consisting of some 5,000 enrolled seamen.

The state of these men, and the terms of their engagement, would hardly affect the difficulties that are described as inherent in the mode of fitting out, and preparing our men-of-war for effective service ; and we are the more satisfied that this is the case, from the circumstance of Admiral Bowles, one of the most calm, but at the same time powerful advocates for the increase of our national defences, having, for some years, commanded that force, and being, in consequence, fully aware of their value.

Should we, however, happily adopt a new and better system with regard to the maintenance of our naval power, however perfect that system may become, our safety from the awful consequences of invasion will be far from complete, unless we can be prepared with some adequate forces on shore.

The author has adopted an ingenious device for the purpose of bringing into view at one glance the comparative strength of the land forces of France and England, by the relative length of straight lines : and while that representing the force of Great Britain scarcely extends over the span that would be covered by a word of eight or nine letters, the length of the "sword" of France, as it is called, requires a fly-leaf of three folds.

Contemptible, as it thus appears, are our means on shore for the resistance of invasion. We do not agree in opinion with those who think that the French could make the attempt with any reasonable prospect of success, without a naval superiority in the Channel; but let them obtain such a superiority for a single week, either by the superior state of preparations for war—attributed to them by our naval authorities—or with a general inferiority by threatening other points, and concentrating in the Channel, (as they only failed in doing in 1805 by the blunder of their admiral,) and there would be ample time for the introduction of 200,000 men, with cavalry, artillery, and horses, into the country.

We have now to reflect upon our means of resistance. There are at this stage three favorite topics advanced for our consolation:—

First—that the disembarkation must be so slow, that it might be successfully opposed, even by a small force.

Secondly—That hundreds of thousands of brave Englishmen would arise, arm, and sweep the invaders into the sea; or, failing in that attempt, it would *only* be necessary that each individual, by an act of self-immolation, should at any personal risk, kill one of the foe, by which means the whole army would be destroyed.

Lastly—That, by husbanding our pecuniary resources, we are accumulating the acknowledged

sinews of war, and may thus be prepared to defy the world.

We have only space for a few words on each of these fallacies, for as such we cannot but consider them. A very rapid landing of troops in considerable numbers, from a fleet of ships after a long voyage, is scarcely practicable. The greatest recorded effort of this kind, was the landing of the British forces in Egypt, on the 8th March, 1801, when 6,000 men simultaneously jumped on shore; but where the passage required is only across a narrow channel, and where there would be no difficulty in previously preparing a system of floating jetties, applicable at any state of tides by means of a very numerous craft, drawing not more than from three to six feet water, with other contrivances quite within the reach of those who, in 1804, could embark at Boulogne 100,000 men in the space of half-an-hour, it would be perfectly practicable to land 50,000 men or more, within a few hours; and others, in succession, as fast as they could be brought up. We fear, therefore, we should have but a slender reed to rest on in the assumed impossibility of a successful landing. At the same time, in the enumeration of the facilities for invasion afforded by steam, the consideration of the number of days when, from stress of weather, the old sailing vessels would have been prevented from making the attempt, will apply with equal force to steamers, and more particularly to small craft. The time

required to collect our own forces to repel the attack, is unfortunately not to be measured by that which would enable a gentleman, with his carpet bag, to run down to Dover to fulfil an engagement; but will be prolonged by all the difficulties of the arrangements for the simultaneous conveyance of many thousands of soldiers. And then, the French general will hardly be so polite as to send a card presenting his compliments to the Duke of Wellington and requesting the honor of his attendance at a *ball*, at Eastbourne, on Wednesday 27th June, at six a.m.; but it is more than probable that, by a show of *engagements*, at other places, he will secure for himself time to be fully prepared for his Grace's reception.

The next prop offered for our support, is the power that would be brought against the enemy's army, if landed. In addition to the troops which would be available, but, as we know, in very small numbers, we are told that we may with confidence rely on the hundreds of thousands of stout hearts and hands that would be prepared to resist the invader.

No one can doubt the courageous and excited feeling that would animate our countrymen in *numbers* adequate for every purpose that could be required; but what could such feelings effect opposed to a thoroughly well equipped, organized, and disciplined army in the field?

There is no instance on record of a populace,

however superior in numbers, successfully opposing an organized army, except by a very prolonged desultory warfare; and every year the advantages of discipline against untrained forces are increased in proportion to the improvements made in military science.

There is as much difference now, between a French army and a British untrained *levée en masse*, as there was in ancient times between our painted ancestors and the Roman legions of Julius Cæsar.

The British, as the least military nation in Europe, would be peculiarly feeble in such efforts, and what was impracticable against regular armies to the Prussian, Russian, Spanish, and French populace, will be even more so to them.

It is worthy of observation, that those who have seen most actual service against French armies, are those who have least confidence in our measures for national defence, while those who attach so much importance to the resistance to be offered in the case of invasion by a small body of troops, or a large mass of armed populace, are persons who have never seen a shot fired, who, indeed, are totally ignorant of military matters, or of the arrangement and movement of large bodies of men in any kind of order.

We form many speculations which, in the abstract, appear as matters of course; but looked into more closely they are soon found to be full of difficulties.

Let us then put this to such a test. In the first

place, what are the classes of persons who would so readily abandon their families *at such a moment?* Where would they get arms, and of what description? Where procure ammunition, and how would they carry it? How would they arrange their little kits, of which a great coat, and blanket, and good spare shoes, would be essential articles? How provide themselves, or be provided with provisions? What would become of these masses the first night or two, particularly if there should be rain? Would they march at once, or would they go to the railway station, like the crowd on an Epsom day?

We will, however, suppose all these *little* difficulties satisfactorily arranged, and that there are twenty thousand men on the Dover or Hastings road, some fifty or sixty miles from London, toiling along that road and covering a space of at least five or six miles in length, when a few horsemen, who have been in front, gallop back with the news that the French troops are approaching, and about three miles distant; and soon after, small dispersed bodies are discovered coming towards them, while, from a height presenting a good view, may be seen large black looking compact bodies moving in the same direction.

At this period what would our heroes do, admitting them to be full of gallantry and animation? Would those in front hasten onwards to meet their detested foes, calling and sending to those in rear to close up as rapidly as possible; or would they

spread out right and left of the road to form a front?

We will suppose a Gough, a Hardinge, or a Wellington to be present, and we will propose to them as a problem what to do on the occasion; and if they had the smallest body of regulars in company, we would ask whether they would not *prefer*, nay, decidedly prefer, to be altogether without this armed population.

Under any circumstances, a *levée en masse* of the people is worse than useless in opposing an enemy invading England; they can only be turned to account in desultory warfare, in mountainous countries, or in defensible towns; and even then with more or less effect in proportion to the amount of system adopted for the regulation of their proceedings.

There is one other resource suggested by persons of a romantic turn of mind, which is, that every man should seek for means to kill one of the enemy, which would speedily lead to their entire destruction: this is not new, it has been urged as a system in other countries on similar emergencies; a few hundreds of stragglers have been made away with in this manner, but with no perceptible effect on the strength of the armies; and with a certainty of entailing cruel measures of retribution on the inhabitants generally, which usually puts an end to the proceeding.

The next point we have to consider is the propriety of husbanding our pecuniary resources, that

is, to accumulate wealth to be available when called for, by avoiding present expenditure in preparing for exigencies which may not occur for an indefinite period.

As on this principle it would be very necessary that we should have time for preparation, it would be the policy of the French not to afford it to us; consequently, when determined on war, (assuming them to be so much better prepared for it than ourselves,) they would temporize for a time, then suddenly close the negotiation, and proceed with activity to the work before them.

If we could then, like Cadmus, with his dragon's teeth, raise any given number of good troops, by sowing our collected gold broad-cast over the ground, it would be well; but we shall find it a slow operation to obtain soldiers capable of opposing a French army.

It is not easy to raise regular soldiers in numbers; men do not enlist from patriotism, and the profession is not popular in England. Hence, the very recruiting is a tardy process, even with high bounties.

Again, it is asserted by officers of experience, that eighteen, or at least twelve months, are required to make *a young soldier*, a character said to be very inferior to that of the *good old soldier*. All this tends to prove the length of time that must necessarily elapse before we could be prepared to bring into the field what could be called a respectable force.

We have, now, no means available for accelerating the raising of recruits, in large numbers; enormous bounties might answer to a certain extent, but this is a system attended by many evils, in addition to the cost. We are willing, however, on such an emergency, to admit of the troops being brought into the field, after a slight training of about three months; and, with plenty of good officers, with superior numbers, and mingled with a few old troops, they might make head, as was done by the French at the commencement of their first Revolution; but still a preparation of *months* is required, where weeks are of consequence.

From the above sketch, it will be seen that we adopt very much the views of the author. We do so with sorrow, because we find that there is no disposition in the country to pay any attention to the subject.

We are not surprised that the nation should despise the idea of such inferiority as is here described, still less that they should scorn the notion of *danger* from an enemy of whom they have hitherto never entertained a fear; but we do wonder, that when such strong opinions have been given, by many who ought to be the best authorities, no inquiry even should be instituted into our actual condition, nor the slightest attempt be made for drawing up some system for the application of the best resources that may be made available within the shortest period. As we are now circumstanced, in

the event of an alarm, how much precious time will be lost, before the measures necessary to be taken can even be defined.

ON THE ARMY ESTIMATES AND MILITARY ESTABLISHMENTS.[1]

"Cut your coat according to your cloth."

There is very naturally a strong feeling at all times existing in the country for reduced taxation, —involving, as a matter of course, reduced expenditure;—the maintenance of the efficiency of the public services is a secondary consideration; and the implied reasoning would seem to be, that the advantage of increased wealth in the community,— which taxation tends to check,—will, eventually, more than compensate for the incompleteness, or partial inefficiencies in the public service. The system is, to restrict the public expenditure to a given amount, and then to require Government to make the most of it. They are, in fact, "to cut their coat according to their cloth."

Among the various items which, it is argued, are susceptible of retrenchment, some meet with more favor than others:—for instance, the military expenditure has been always that for which the feeling is for curtailment to any extent; it has become the most popular outcry; and no electioneering claim to favor is admitted, without the

[1] Published in *United Service Magazine* of May 1857.

introduction of "*reduced military expenditure;*" —with all parties, the established clap-trap is, who shall bid most in this captivating promise.

The manner then in which the "*coat*" is to be provided for, is much the same every year. After the fatigues of the Parliamentary Session, and the ministers have taken their very necessary autumnal repose or recreation, they commence their preparations for the ensuing season;—it is then that the Estimates are discussed with due deliberation; every item is explained and studied in detail,—never losing sight of economy,—but efficiency of the service, whatever that service may be, being the primary consideration.

This, then, might reasonably be pronounced to mark the real wants of the country; but, unfortunately, it has to pass through another ordeal, which entirely mars its due proportions.

The demand made periodically for reduced taxation,—that is, just before the meeting of Parliament, when it is known to be most effective,—now takes place; meetings are held, and the arguments duly recorded in the newspapers, on the impolicy of this or that tax; others enlarge on the more sweeping requirement for *general* reduction; the popular feeling warmly takes up such attractive propositions, —the Opposition are observed to be ready to chime in with so favorable a mode of damaging the ruling power,—and the Government find that they must yield either the amount of expenditure or their

places. Thus the order is given for a general reduction, in the proportion of the favor in which each department is held,—each having, then, at its own discretion, the reduced quantity of *cloth* to which *its coat must be cut.*

One bad feature in this process is, that the government consider it so necessary to yield with a good grace, and not to submit to the damaging result of being compelled to do so, that they make themselves responsible for the consequences; and then, in case of misfortune from inadequacy of means, it is triumphantly thrown in their teeth that parliament had never refused to grant what was demanded from it.

Of all items of expenditure, that for the military service is the one of all others that should not be lightly reduced; because greater interests may be influenced by such reduction than by any other.

It is not here the desire to advocate profusion or an indiscriminate compliance with every demand made. Let economy, and a limitation to that which is strictly necessary, be rigidly enforced; but let the expenditure be with reference to the real wants of the service, and not to a given sum, which, right or wrong, it must be made to fit. It is all very well to talk of *abuses*, and very right to lop them off without mercy, to reduce such an allowance or establishment, and to correct such and such bad arrangement; but it is most impolitic to make these amendments (which, in the aggregate, only

amount to a few thousands of pounds) the plea for abstracting necessary hundreds of thousands from the efficient wants of the service.

There is another manner in which this fallacy is enforced, and that even by eminent statesmen,—which is, that the best preparation for war is the accumulation of wealth; perhaps, because it is popularly called the "*sinews of war*,"—and on this plea is advocated the greatest parsimony in the military expenditure, during a period of peace; but the error, in this case, consists in not being aware that no amount of wealth whatever will enable the preparations for war to be made within a short period, — during which time most important advantages may be gained by the power which is first able to take the field.

War may be offensive or defensive: of the two, the measures for defence are far the most important, as they involve the preservation of our actual possessions, and even of that which constitutes our very existence as a nation; and, unfortunately, these measures require the longest time for preparation.

Troops, which are required either for offensive or defensive operations, cannot be raised and made efficient in less than from one to two years. Arms, ammunition, equipments, and accessories will likewise require a long time; although they will be, from the commencement, in gradual progress of supply.

All this was clearly experienced during the late war with Russia; and it was only towards its close that we found ourselves equal to maintain an army of from 25,000 to 40,000 in the field; for whatever may be said of the errors of individuals or of management, the great deficiency of military means, for the first one or two years, in spite of the greatest effort to counteract it, was real and undeniable.

It is as if, for a security against fire, you laid by your money at interest, to be expended on making engines and organizing a proper fire brigade as soon as the conflagration commences.

That such arguments should prevail at the present period is all the more strange, because if there is one thing which passing events demonstrate more clearly than another, it is that war, through the progress of science and of the mechanical arts, is fast assuming a phase where no amount of wealth, of popular enthusiasm, or of bravery, will compensate for a want of that high training which the *individual* soldier must now possess; and the appliances of modern warfare have reached a stage of perfection of art and workmanship, which must place all unprepared communities completely at the mercy of regularly organized bodies of troops.

Thus, at the first outbreak of hostilities, the nation with the large standing army has now an enormous advantage which, in former times, it never possessed. Before the invention of gunpowder, there was little distinction between the

soldier and the civilian; and armies swelled and melted away, as the surrounding population joined or abandoned the standard. With the invention of gunpowder, and the more scientific character which warfare then assumed, the advantages of a trained force became apparent, and standing armies were the natural consequence. The superiority thus gained, it is evident, will increase in the same ratio as warfare becomes more skilled and scientific.

A characteristic of the present age is division of work, and the substitution of skilled for unskilled labor; and nowhere are its effects more marked than in the organization of armies. Thus, the common soldier, the mere machine of pedantic military writers—the "legs" and "arms" of Marshal Saxe—now undergoes a process of training, which, at the same time that it gives him a knowledge and command of his weapon, tends, in a measure, to develop his reasoning faculties, and to substitute skill and intelligence for what was before an instinct or mechanical action. Thus, the soldier has now, more than ever, a trade to learn, and an apprenticeship to serve, and until this has been done, not all the fine military qualities possessed by the man, will make up for the want of training of the soldier, even if the raw material is forthcoming, which is not always the case. Ten thousand additional British infantry would have taken Sebastopol

before the month of December 1854, and saved all the sufferings of the winter campaign ; but not all the boasted wealth of England, the "sinews of war," could supply the British infantry required.

In 1847, the opinions of the late Duke of Wellington warned the nation emphatically of the dangers of its position, from want of military means. During the excitement of the late war, the public were made alive to these deficiencies, and liberally admitted of a very great expenditure to place the military establishments of the country on a proper footing; but now that we are blessed with a return of peace, the demand for reductions is likely to bring us rapidly to the old and very worst condition.

This game may be played again and again; on each occasion throwing the blame of the consequent misfortunes on the powers that be, and their unhappy agents; but it may be played once too often, when the results may be awful.

History, in all its ages, affords examples of the fall of commercial states which trusted to their wealth alone. From the period of the destruction of Carthage to the downfall of Venice, all the commerce and wealth of such states, combined with the highest spirit and civilization, have not saved them from falling a prey to their more military rivals. Wealth, unless it supplies means of defence, only entices the conquest which it has no power to avert.

There is another fallacy which there is reason to believe may be prevalent in the minds of the public, and tends to blind it to this mistaken policy: namely, a reliance on the cordiality which, at present, happily exists, or is supposed to exist, among the ruling powers in the world, and, in particular, on the state of friendly feeling and union of interests between Great Britain and France. Long may it so continue; but history is full of experience, showing how rapidly unforeseen circumstances may arise to loosen such bonds; and though there seems every reason to believe in the infinite value to both parties of these friendships and alliances, every one is aware of powerful feelings, passions, and interests, which are always actively alive to an earnest desire to dissolve them.

It surely then must be considered within the range of *possibility* that, in course of time, an attack from France, and perhaps a coalition between that and other maritime states, might be formed against us; it is not too much to say that such an event, while we pursue our present system, would possibly cause the absolute loss of our independence as a nation. Many circumstances might befriend us in escaping from so tremendous a calamity; but they would be fortuitous, and such as we have no right to take into calculation.

In triumphantly enforcing these retrenchments, there is a foolish impression among the public that

it is the government of the day whom they are restraining; whereas it should be recollected that it is their own coat that they are so miserably curtailing, and their own nakedness that they are exposing to the ever-impending storm.

Without further explanation we should be accused of desiring to advocate the maintenance of full war establishments during periods of peace. We do no such thing; by sufficient arrangements and precautions, we consider that we may abstain from the constant maintenance of those enormous military forces which are so prevalent on the continent of Europe, and that cannot be dispensed with even by ourselves, during the period of active war. The real question is, what *are* those sufficient arrangements and precautions, and not how many of them can we obtain for a given sum.

Without precisely defining the deficiencies which the sudden sweeping reductions now demanded will entail, we may state some of the desiderata of the service, and the system on which they may be obtained with most economy.

The consideration embraces four leading points: —first, the regular forces; secondly, those prepared to add to them, when hostilities occur; thirdly, the accessories of war, including arms and military appendages, munitions, organization for the supplies, and care of the sick of the troops, &c.; fourthly, fortifications.

1. The foundation of the military force is the regular army,—infantry, cavalry, artillery, and engineers. In proportion as they may be maintained in strength, will be our position favorable for entering upon hostilities; but as they are, with a small exception, totally abstracted from the industry of the country, entirely supported by the public, and consequently expensive, they ought, in conformity with every principle of social policy, to be kept, during peace, at a minimum; but that minimum ought, of course, to be regulated according to the numbers absolutely required, and not by caprice.

Thus, we have large foreign possessions, which require, in the aggregate, a considerable number of troops, even in peace time; how far the adoption of different modes of policy may admit of reductions in them is a separate question; the wants at present are great, to guard them from both external and internal contingencies, and hitherto, during peace, the numerical force of these troops has been kept so low, as to create apprehension, at times, of sudden calamities. Reserves are required at home, to maintain the strength of those troops, to afford them reasonable relief, and to provide for contingencies of reinforcements that are constantly necessary to guard against some apprehended danger.

The provision for these reserves might be such as to establish, at the same time, a sufficient force

in the British Islands to form a basis for the early efforts in any war; in the first place, to withstand any attempt upon our home; then to strengthen the most exposed of our foreign possessions; and lastly, to be available for aggressive operations.

In the consideration of the proportions in which they should be maintained, it certainly would seem to be the most judicious policy, rather to make reductions in those corps that can be the most speedily replaced, than in others which require more time. Thus, an effective infantry soldier can be formed in half the time that is necessary for an artilleryman, or an engineer; and therefore, it would be wise to maintain habitually those two bodies in greater proportionate strength than the other; and particularly the engineers, not only on that account, but because they are the troops which cost by far the least to the public, inasmuch as, being all of them artificers, and very much employed as such in public works, their working pay does not exceed an average of 10*d.* per day, against about 4*s.* that the civilian would require at home, and still more abroad. The difference, consequently, after subtracting his maintenance as a soldier, may be considered as so much gain to the public.

On the first point then, that of the regular forces, we apprehend an incompleteness in all these very necessary particulars, in consequence of the pressure for reduced expenditure.

2. The standing army, even in the countries where it consists, in peace time, of 400,000 and 500,000 men and upwards, is in none thought to be sufficient for the emergencies of war. In all, a local reserve force from the citizens is organized, for the purpose of embodiment when the occasion arises; such forces are composed of an inferior description of troops, but are in great numbers, fit to be thrown into garrisons, and otherwise to take up the ordinary standing duties of the regulars, and leave the latter, consequently, entirely available for the active work of a campaign. Where these auxiliary forces are organized on the best system, they soon become very respectable troops.

Thus, France has her garde-national, Prussia the landwehr, the United States their militia, and Great Britain militia, yeomanry, &c.

Great Britain, more than almost any other country in the world, requires this supplementary measure carried out on the most efficacious system; because none, by constitution and jealousy of military expenditure, keeps its regular army in so low a state for the emergencies that may suddenly arise.

The auxiliary forces which have been more or less established in England for the emergencies of war, are the militia, yeomanry, pensioners, and dock-yard battalions—all of immense importance, if duly maintained; but it has already been a

subject of complaint among those who are connected with some of these bodies, that their training will be neglected, whereby they will be reduced to a state of comparative inefficiency; all arising from the want of means at the disposition of the war department. A very serious failure may be consequently anticipated in this second and very important item of military precautions.

This neglect is the more to be regretted as these establishments, without interfering with the productive industrial resources of the country, would, if duly regulated, produce a great increase of military strength in times of emergency, at comparatively small expense.

The system is, in fact, one which, instead of being checked, so peculiarly deserves encouragement, that we think it might be even extended to great advantage by the organization of a large body of local volunteers round the coasts, somewhat on the principle of the admirable plan of the militia in the Channel Islands, but even at a less expense in the matter of uniform, &c. Such an arrangement, to be efficient for its object, must be essentially voluntary; and some trifling advantages should be held out to the volunteers to render the system popular. By no other mode can the scattered commercial harbours be secured in time of war. A militia would also be a very necessary measure of defence in those colonies where it could be trusted, which would be

wherever the population is British, or where the interests of the people, even if of foreign origin, are, by conciliating management, completely identified with that of the British nation.

3. The amount of the minimum of provision and arrangement for the several accessories for the military service, is matter for study and calculation.

The wants and deficiences under this head were deeply felt during the late hostilities, and were, in great measure, the cause of much deprivation to the soldiers, and inconvenience to the service. Great efforts have been made to produce reforms, and establish a good and permanent system in these needful measures; but it is clear that they also will be greatly retarded and left incomplete, under the check that will be occasioned by the reduction in the estimates; and it is the more important to watch narrowly the progress on this item, as its efficiency can hardly be judged of till actually proved in war, and for that reason its neglect will be the less observed.

4. The public, it is believed, are not generally aware of the advantages of fortifications, at least, expenditure upon them is very grudgingly bestowed; and, in consequence, they are not only very defective, but have been necessarily hitherto projected on a miserable scale, unworthy of the objects they are intended to serve.

Fortifications are among the best preparatives for defensive warfare—once made, they are always ready, with the application of moderate means, to form a barrier to an enemy, or make his advance very hazardous. They form secure receptacles for the assembly of active forces; while they can be held by those who are least useful, or even totally inefficient for the field. They are, no doubt, expensive, but not unreasonably so, for the position they hold in the game of war.

The cost of a single sloop of war, with its equipment, will construct a fine fort, which will last almost for ever; and that of two or three line-of-battle ships will raise a fortress. It is by no means necessary to cover this country with fortifications, as is done on the continent; but few people, who consider the subject, would not admit that it is most desirable to provide our naval arsenals, and a few leading points on the coast with defences, and to apply additional protection to some of our foreign possessions.

Our fortifications are yet so imperfect, (although what is done will all turn to useful account,) that considerable measures are requisite to place them in a tolerable position. These measures ought not to be delayed; and to fulfil the object effectually, a certain annual expenditure should be specially assigned for the purpose. To obtain steady and efficient progress, the annual sum voted should be

placed on a fixed understanding of not being subject to fluctuation, like the ordinary estimates.

We do not here propose to enter into any considerations regarding the *naval* preparations for peace or war; whatever they may be, we would not vary in the preceding propositions for the land forces. The more efficient the preparations on shore, the more available will be the navy for concentration, and for distant service.

In comparing the military expenditure at the present time with that of former years, allowance must be made for the urgent, and generally very proper demand, enforced by the public voice, for improved care and accommodation for the soldiers, which has increased the cost for barracks, hospitals, &c., &c., by at least one third; allowance must also be made for improved and more costly implements of war, and the further development required in the accessory departments.

We have endeavoured to point out what should be the course of inquiry for regulating the estimates for the military service; our own opinion is, that they are at present insufficient under every head. The argument on the other side will be, that this is mere assertion, and unreasonable. We are willing to put the question to that issue, after a proper investigation; but let us have no more of "cutting your coat according to your cloth," and giving a small quantity in revenge for

an assumed extravagance in having put too much gold lace upon a former coat. The country has the power of giving the full measure that is needful; its best policy is to do so, and *then* insist upon having an efficient garment.

BALTIC, TURKEY, AND CRIMEA.

THE LOG OF THE "PET."—SHIPS *versus* BATTERIES.[1]

THE manly character of the sports and contests in which we are initiated during our days of boyhood—regulated, as they are, by a certain set of traditionary rules of honor—has, no doubt, a great effect on our after life, and stamps a spirit of daring and enterprise on the character of an Englishman.

The cricket, fives, and foot-ball of school are followed, at a more advanced age, by hunting, yachting, and climbing Mont Blanc; and even our childish pugilistic encounters lead to the ardour of anxiety to close with our enemy in the field of battle. So deeply are we impressed with the nobleness of these national feelings, and the hardy exertions to which they lead, and so proud are we of them, that we should regret exceedingly to witness their gradual abandonment, or even reduction, by too close and rigid a course of

[1] *United Service Magazine* of January 1856.

study, such as it seems to be the prevalent desire now to enforce; and we dare to confess, against the pedantry of the day, (if we may use such a term towards a feeling which may be acknowledged to have a right foundation,) that for an officer we should prefer a young man distinguished in the above qualities, and who had a moderate education in elementary knowledge, before one who had, by close study, been crammed, by rote, up to the mark of being able to stand a severe cross-examination (*cross* in every sense) in history and geography; and we have a strong feeling that the former would not only prove the most active and energetic soldier of the two, but that from among his class would be subsequently found even the most enlightened, owing to the cord not having been too tightly drawn at first. For want of five-barred gates to jump over, or Monts Blancs to ascend, the enthusiastic spirit that has been imbibed in youth may vent itself in the search of knowledge, assuming that vicious propensities may assail the one class as well as the other,—that the early student may degenerate into a sot, as likely as the other into a more active drunkard. Applying every thing that comes before us to the peculiar objects of this periodical, we, as contributors, are led into the above reflections by the perusal of the "Log of the Pet."

Here is a collegian who amuses himself by

sailing one of the smallest of yachts on the Thames, or what a passer-by would call "a little pleasure boat." Eight tons burden may not convey to ordinary readers any just idea of its size; but the author's description will be more readily understood—"about as long as a moderate-sized drawing-room, and scarcely so wide as a four-post bed; the cabin 10 feet long," and of the above grand width.

He is probably struck with the fine sea qualities of his "Pet" during some storms on the Thames, and determines, in 1854, to take a cruise in it with our combined fleets, which were then on their first great display in the Baltic, and to witness their operations, neither himself nor his vessel, it will be perceived, partaking, in any degree, of the character of a man-of-war.

None but an Englishman could ever have taken up such an idea. We remember somewhat of a parallel case, some twenty or thirty years ago, when four young officers of the cavalry depôt at Maidstone were rowing a gig on the Medway, on a fine, calm day, and one of them said, "Suppose we row round to Calais." "Hurrah! for Calais!" said the other three; and, favored by a continued fine weather, they accomplished the task in their skiff, without taking off their clothes, or going to bed.

To return to our "Pet." Having made his excursion, and witnessed a feat of arms in the

fall of Bomarsund, it is not surprising that its owner should record all his perils by land and sea to his friends; nor that they should encourage him to communicate them to the world; and, what is not always the case on such occasions, the world is in their debt for a lively, unvarnished tale of his little cruise, including some stirring scenes.

There is no affectation nor apparent labor bestowed on the narrative; and there is so far from any spirit of book-making in this little volume, that many places and scenes of interest are passed with a few rapid remarks, where more ample descriptions would have been received with satisfaction.

The tone in canvassing the warlike proceedings, however erroneous in principles, is, with some few exceptions, that of a gentleman of good humor, and is quite refreshing to peruse after the depreciating, cynical remarks of many, whose eyes can discern with magnifying powers every adverse occurrence, but are quite blind to any unavoidable difficulties that may have caused or increased them.

The narrative partakes of two characters of events: one, that of the voyage out and home—the adventures of the sea, the exertions necessary at times for the very safety and preservation of the little craft; and cursory remarks on the places visited, in which the author can occasionally

afford to indulge in a moralizing sentence,—such as, when describing the University Library, at the summit of a great square tower at Copenhagen, which is mounted by a spiral macadamized road, as seen in pictures in the Bible of the Tower of Babel, and up which (that at Copenhagen, not of Babel) Peter the Great is said to have driven four horses; he remarks, "The road to learning is always steep and arduous, but at no capital can letters be said to occupy a higher position than they do at Copenhagen!" The other subject is in treating of the proceedings of war, as exhibited before Bomarsund, being the one that more particularly attracts our professional turn of mind, and tempts us to a very few general reflections on the circumstances that are adverted to.

Mr. Hughes, fresh from college, where probably (or in some such peaceable precincts) his life has been passed, is not likely to possess much knowledge of military affairs; nor, to do him justice, does he profess it. The few remarks, therefore, that are appended to what he sees, are far from affording us much useful information; but, on the contrary, adopting cursory opinions thrown out by others apparently as ignorant as himself, they would rather tend to mislead us in our judgments on the passing events: he sees with the eyes of a seaman not very conversant with land defences.

The fact is, that the works of Bomarsund, con-

sisting of distinct, high towers of masonry, however competent they might have been against shipping, were utterly insignificant against troops who should be once established on the island, and who should have a few heavy guns available to put into battery. This having been the case at Bomarsund, it would have been most injudicious, because quite unnecessary, to allow any men-of-war, great or small, to run the slightest risk, by direct contest with those works.

It appears that, at 900 yards' distance, a battery of a few ship guns was rapidly making a breach; it was, therefore, only necessary to have one such battery against each tower, either at the same time or in succession, and to guard that battery against any sortie, and the reduction of the station was secured to a certainty, and could not be attended with much loss; whereas, by allowing the vessels to be engaged, an accidental shot or a shell or two might have done great injury to them or their ship's company, or they might endanger themselves by getting upon rocks in endeavouring to close with the batteries. The navy are always, however, impatient for action, and very reluctant to see the gentlemen on shore do all the work; but every feeling of the kind, on such an occasion, should be overruled in a peremptory manner, and high blame attached to any officer who should put his ship or men into danger so unnecessarily.

We cannot find fault with the pride with which

an amateur can indulge himself, on his first introduction to the field of battle, by recounting in detail his hair-breadth escapes, and the awful circumstances of the "shell bursting over head with a report that shook the woods, and the splinters that came pattering down," and the shot that "took off a bit of fir within six inches of his nose, while another almost grazed the cap of his friend;" but we regret a few remarks, which have a depreciating tone, without much reason. Thus, it is said: "Though Inkermann had not yet taught us its fearful lesson, still there were more than one among us who thought that if the enemy had dared to risk a midnight sortie, our camp was so placed that we must have been shot to a man, or have fallen back on the French." First, there is an uncalled-for allusion to the cant about Inkermann, which has gained currency, on a complete misunderstanding of the circumstances of that action; and then, at Bomarsund, certainly the nearness to the Russian batteries, and the description of the ground, which are previously stated as the circumstances alluded to, are far from being sufficient to justify the opinion of "more than one of us," that the situation of the British was insecure. Many a position far more exposed in the trenches of Sebastopol was most successfully maintained against a far greater disparity of forces; and we must be slow to believe that there was so great a want of common

precaution in the camp, even at midnight, as to make our officers liable to such a censure.

The author, as a novice, may very well be supposed to think that he is on some desperate service when he hears shot and shell flying about him, and then to be elated at the rapid and easy success that follows; but there is a false impression created in the expression that "these round towers, with their perpendicular sides and iron-capped roofs, have a bold, martial appearance; but their real strength, as events proved, was entirely overrated." We would ask, by whom were they overrated? Certainly no officer of artillery or engineers would rate very highly the strength of an isolated, lofty tower of masonry, exposed from top to bottom, where heavy guns could be put into battery against it; the circumstances, and general strength and position of the enemy on the island may have been overrated before the landing, but the strength of the towers, *per se*, could not have been so by any one who understood the matter.

The author talks of being "unwilling to speak slightingly of a vanquished foe," when nothing can be more unmeasured than his abuse of them:—"a cowardly, drunken, garrison;"—"a strange, sordid crowd of convict-looking wretches, in long workhouse drab coats, scrambling and huddling together in all the attitudes of drunken, senseless merriment."—"On the whole, the gunnery of the Russians was a failure from first to last," &c., &c.

After these specimens, we could not refrain from rubbing our eyes on reading in a subsequent part the following:—"Young gentlemen should really mind what they write to the newspapers;"—"It is bad enough to slander our friends, but everybody does that; but for heaven's sake, let us not tell lies about the Russians, nothing can be so ungenerous!" We could not help thinking of this poor innocent, that, barring the writing being for the newspaper, *mutato nomine, de te fabula narratur!*

To return, however, to the specific charges. The economy practised in the Russian army leads to the habitual use of a coarse grey coat, which is very often threadbare; and, taken individually, a Russian soldier, on service, has not a smart appearance; and with regard to the confusion, filth, and drunkenness, we can tell the gentleman who is so hard on this unhappy detachment, that, even with the troops of the most civilized nations, such effects are commonly produced by the state of excitement and disorder accompanying a body of men thus suddenly huddled together within close buildings, and rapidly crushed by very superior powers. We have information from officers of knowledge and ability, who were present, and who were not to be misled by these deceptive indications, which puts things in a different light. They describe the garrison as well appointed, well clothed (as regards essentials), and composed of good

troops; if their conduct at Bomarsund was cowardly (which we do not believe), it is a very rare instance of the kind, for there are few soldiers who show more bravery than the Russians.

The artillery, according to our informant, so far from being of an inferior character, was good and well served; in proof of which it is stated that the practice against the breaching battery was extremely well directed. There is certainly a great parade made about the little injury suffered by the *Amphion* and other ships; but this may be well accounted for when we learn that they were 2,200 and 2,300 yards distant from the enemy's batteries, and that, we are convinced, without a particle of blame to the gallant commanders. It certainly would seem strange that the *Amphion* should remain all night at her fighting moorings, and recommence firing from the same coolly at nine o'clock the next day; the great distance, however, could quite and alone account for her so remaining, and for her being unmolested; the injury she is reported to have done to the tower is vague and problematical. Certainly if any injury was done to the masonry from that distance, that masonry must have been of the most wretched description conceivable; and we cannot admit that even "as far as this place was concerned, the stone wall bubble was burst and blown up for ever."

Nor is the censure on the period of the surrender very appropriate: "The Russians, com-

pletely overmatched, might have surrendered without a blow and without disgrace; having once engaged, they should not have surrendered when they did."

We think, on the contrary, that, in this respect, they did precisely what was right. They obliged the allies to make manifest the full power to reduce them: to land, establish themselves, throw up and arm sufficient batteries, and to exhibit the power of those batteries by the effect of their fire upon their walls. It was clearly their duty to do that; and if the Russians had the slightest hopes of being relieved, or of being able successfully to oppose the attacks, they ought still to have held out; but merely to remain for a few hours more to be butchered by an enemy's fire, without a power of resistance, may be very heroic, but is commonly deemed an act of barbarism and brutality.

The homeward-bound voyage is of the same character as that out. In both, the narrative is lively and not spun out; and in both, some incidental notices of public interest are to be found.

The *Seaman's Guide* is described, on many occasions, to be imperfect and untrustworthy. The harbour of Slitchamn in the island of Gottland, for instance, which is puffed and applauded in it, as if it were a kind of seaman's Utopia, is found to be dreary and desolate; and though "a noble bay, the entrance is beset with reefs; and so little trouble has been taken to mark

them, that it would be dangerous to run in without a pilot, and in a breeze of wind the sea would be too heavy for a pilot to get off." Farö Sound, not very far to the north, between an island of the same name and Gottland, is described, and for good reasons given, as a far superior station, and well worthy of attention and establishments.

"The Swedish seamen are excellent, fine, sturdy, healthy fellows; the officers are gentlemanlike, well-educated men."

As regards their gunboats, from which it is expected so much service would be obtained, should Sweden enter into the alliance against Russia, little praise can be given. They are unwieldy and out of date, sail heavily, and with their heavy ordnance fore and aft, would be unsafe at sea. Such as they are, however, they were found to be in admirable order.

The Swedish regular troops are also very fine. The militia no less so in personal form and figure; but the latter, it appears, very miserably armed—a deficiency that can be easily supplied.

In the spring of 1855, the author "found it impossible to resist the temptation of undertaking another Baltic cruise;" and, after a slight description of this second voyage out, he is found joining the combined fleets off Nargen, in the Gulf of Finland; and here he at once chimes in with the heavy complaints of our seamen at their continued inactivity. He exclaims that "the

war was still being waged in the heavy, lumbering fashion of last year; not towns and villages alone, but Martello towers and telegraph stations along the coast remained uninjured and unassailed."

This restless impatience to be doing something is very mischievous. A war, carried on by insignificant, unmeaning, dribblet efforts, is injudicious, disreputable, and unworthy of a great nation. If a mass of shipping, or other available military or naval resources are assailable, there may be reason in expending a great amount of enterprise in the attempt to capture or destroy them; but it would be deemed childish (if the sufferings it might entail were not too serious for such an expression) to injure harmless towns and villages, or to make flying attacks upon even "Martello towers and telegraph stations," where, if a landing were made, an ambuscade might at any time cause some heavy catastrophe, or where, if it were not attempted, a serious casualty might happen to a ship; and all for no other object than to exhibit the dash and pluck of our gallant seamen—qualities too well known to require any such demonstration.

The individual proceedings of the "Pet," in this second voyage, are told in a similar off-hand light style as in the first. The reflections on the manner of carrying on the war, and on the bombardment of Sweaborg, are as little to our taste and ideas as those on Bomarsund.

Of the different classes into which the author divides the fleet, as regards feelings, he adopts altogether that of the adventurous and irritable —of those who think the ships ought to be thrust headlong against the batteries on all occasions, under a vague idea of being able to crush them, and to complete havoc and destruction on every thing they protect. We are completely at issue with that class.

The legitimate use of our fleets is to command the sea. If they waste their strength and reduce their efficiency by contests with the land defences, while the enemy's fleets may be secure in harbour, they incur the risk of losing that for which they are peculiarly wanted. They give the enemy a double chance, and risk resources of vital importance for partial triumphs of little or no comparative value. Fleet against fleet, or ship against ship in the open sea, and it would assuredly be found that such men as Sir Charles Napier and Admiral Dundas would not have shrunk from the most daring conflicts. Or where an enemy's fleet, or maritime resources of commensurate importance, may be protected by batteries, the object is of sufficient consequence to require the admiral to consider (and they both did consider thoroughly) whether an attack may be attempted; and a great deal of enterprise and the incurring of some risk will be admissible. But, even in that case, such an effort must be held to be the exception and not

the rule, and only to be made when the shore batteries are not under circumstances to afford the full necessary protection; but, we repeat, to send men-of-war to hammer against land batteries, just for the sake of a fight, or to destroy what can speedily be replaced, or where they must themselves necessarily be thoroughly crippled or destroyed, is entirely to be deprecated, and the Admirals only performed an essential duty to their country in avoiding such a risk.

The mischief was, sending fleets out of proportion for the service required of them, by which hopes were raised that these outrageous acts were to be looked for. It was, no doubt, these same motives that induced the Jervis's, Nelsons, and other great men, whose names are now invoked for a contrary line of conduct, to adopt the same course in their long blockades of Brest, Cadiz, and Toulon, where the same arguments as are now used might have been applied to bring them into contempt for holding the land batteries in the respect they did.

The advantages of batteries on shore over ships are great, and may be frequently increased by position and other circumstances.

1. Very few of the shot or shell that hit the ship (especially if the former be red hot) can fail to do serious injury, even to the chance of sinking or burning her, or of damaging her steam machinery; while nineteen out of twenty that even

hit the battery will be innocuous. The worst may disable a gun, or occasion casualties among the gunners ; but the dismounted gun can be replaced, and injuries to the battery repaired, either at night, or at any quiet hour or two, while the killed or wounded will be at once removed altogether out of sight and notice to the rear.

2. The projectiles from the battery, if they strike short, have the advantage of a second chance from the ricochet. This would be the case in a very much smaller degree, if at all, against the battery.

3. The battery, when not of high masonry, presents a narrow line of not above three or four feet high, and is only liable to injury at intermediate points on even that line, while the ship exposes universally a height of from 10 to upwards of 20 feet. The interior of the battery (and that covered by a high and massive parapet) is only from 18 to 20 feet wide, which would be the minimum of the width of the ship, and which, besides, is greatly increased at any periods when the vessel may be end on, either in advancing, retiring, or altering its position.

4. The variety of advantages of position that may be taken up for the batteries are many. They may, perhaps, be on the prolongation of a line, by which they will rake the ships, that is, along which the latter must approach. The guns may be much dispersed, and, consequently, it

may be very difficult to oppose them with effect; and, more especially, if they shall be at various heights above the sea. They may be at such heights—namely, from 50 to 80 or 100, or even up to 150 feet above the sea,—which, while it would not in any degree prejudice their own service, would add greatly to the difficulty of the practice against them, and by which the decks of the ships would be almost as much exposed as the sides. Or they may have a flanking direction of reciprocal defence, so that side batteries on one point will see the ship that lies opposite to another without a possibility of being opposed—thus attaining one of the great aims of fortification, to see without being seen. Rockets can also be brought into action from the shore with great effect, and submerged mines. All these several means will be particularly formidable against shipping at ranges not exceeding 500 and 600 yards, to which at least the vessels must approach to gain any real success against the batteries.

The advantages claimed for the ships are—

First, the great power of their fire. Forty or fifty guns opening at once from the broadside of a single line-of-battle ship, and from twenty to thirty from a frigate, will be very formidable, and might well crush any battery of a few guns, concentrated into one small compass, and on a level very little raised above the water; but they would

have but small effect against such as were much dispersed, or in elevated situations. It is supposed that they would speedily batter down tower batteries; but if the walls are substantial, experience has fully shown the quantity of battering they will sustain, at 500 and 600 yards' distance, before being effectually breached, even when the fire is directed with all the precision of service from land batteries. In fact, we have several memorable instances of successes gained by batteries over ships, from the original Martello tower in Corsica to the Prussian batteries at Eckenforde, against the Danish men-of-war; and there are none on the other side, but where the defences were clearly ineffective or ill-arranged.

The ships have, secondly, the steam power, by which their movements are rapid, and can be made in any direction—certainly a great advantage under many circumstances, but not to the extent claimed for it. For instance, it is said that they can take their own position, the one they may think the most favorable; but that will not be easy in the obscurity created by the smoke. So with the large ships, it is thought that, because there may be deep water near the shore, they may close to it at pleasure; but they never could venture to do so in dense smoke. This is so much the case, that a naval officer of great experience and character declared that he could

defend the entrance into Portsmouth harbour with blank cartridges.

It will be understood how the success at Kinburn may be explained by the above data. The works there were very low; their guns concentrated into a small compass; the escarps completely exposed; very insignificant bomb-proof cover; and the site so narrow between sea and sea, that the powerful fleet could lie on each side to bombard and cannonade it. Still even that point, by due precautions of permanent works, might well have been prepared so as to prevent its reduction by floating means alone.

There is yet another case where the fire of shipping may be very effective against the shore. It is when a very large mass of stores, magazines, ships, or other public property, closely concentrated, but covering altogether a considerable space, can be approached, for want of intervening advanced batteries or other impediments, within from 2,000 to 3,000 yards' distance. Shot and shells from heavy guns and mortars may then be brought to bear upon them with success, as was done at Sweaborg; but this cannot be deemed any conflict with the shore, the power of acting offensively being only on one side, and even then with so little effect against the batteries, that it is stated that the enemy "mounted more guns on them after the bombardment than before."

The case, in all these reasonings, will be very little altered by employing gun and mortar boats instead of the larger ships. The inferiority in the contest will be very much the same; but the consequences of failure or losses will be much less considerable, and cannot lead to any general naval superiority of the enemy—a very important consideration.

We have been led into these reflections by the inconsiderate language of the author, in advocating an injudicious and mischievous line of argument. Amidst several sharp reflections against the authorities, for an assumed timidity in refraining from putting forward their forces against the shore batteries, we must notice one for its very unbecoming character.

The propriety of destroying "towns and villages" on the coast, as well as "ship-building yards, commercial stores," &c., is advocated, because we have the power to do so, and the Russians have not; where both sides can play that game, we are to refrain. We cannot see the heroism or generosity of such an argument; and, moreover, we decidedly condemn any such acts of barbarity as destroying unresisting towns and villages. It is presumed that murdering all the inhabitants is to be a part of the fun; indeed, the context is quite to that effect, of which the following is one mild specimen:—"It is not easy to

see why the free citizen of Revel or Odessa is entitled, on abstract principles of humanity, to more consideration than the involuntary serf soldier of the Czar."

We do not know how to designate such a doctrine in terms sufficiently harsh; and really, if we are to hold it, we have no right to complain of the slaughter at Hango, or bayonetting the wounded on the field of battle: and we are astonished at the inconsistency of the pen which could state, in the same work, how ungenerous it was in the enemy to fire on an "unarmed, defenceless yacht," that yacht being manifestly, and, as is boasted, reconnoitering and gaining information; that is, really on a warlike mission.

TURKEY AND RUSSIA IN 1854.[1]

To consider the prospects of a war between Turkey and Russia, we must start from certain data, some of notoriety, others assumed.

It is a matter of perfect notoriety that Russia has the largest available military force of any country

[1] These memoranda were written at Constantinople, in February 1854. The subsequent determination of the Allied Governments to intervene with powerful land forces, rendered the recommendations contained in this paper useless at the moment, but it possesses a general interest, in so far as it treats of the defensive capabilities of Turkey, and the means by which it may be protected at any future period from the assaults of its formidable neighbour.—EDITOR.

in the world; that all its energies and resources are centred in warlike preparations; that its troops of every arm are scrupulously appointed in all respects, thoroughly practised and exercised on a great scale and in detail, and, either by force of discipline or national spirit, fight with very great obstinacy.

As a check upon this enormous military power, its ordinary resources are barely sufficient to support it in a state of quietude: that is, when subject merely to the contingencies of ordinary times, the persons employed and establishments, except military equipment, are kept in a niggardly manner, and a false economy is said to lead to extensive corruption. A state of war is followed by reduced financial resources and greatly increased expenditure, and especially, if armies are to be collected together and advanced from their own territory; while the despotic government of Russia has not the power nor the elasticity of many others, in raising continued large means for meeting the contingency; nor are the countries in which she must in the present instance engage, such as to enable her to make the war support the war, as may be done in more rich and populous states than Turkey in Europe; on the contrary no contributions will be available, and the difficulties will be very great of obtaining or collecting in it the supplies of first necessity.

There can hardly be a doubt but that on and

near their frontiers, very large armies can be collected and maintained by some exertions, but that in proportion as they are drawn to advance, they would be rapidly weakened, and under increasing difficulties and embarrassments; on the other side, the Turkish troops are full of ardour, enthusiasm, and bravery, but the improvements that have been made in their exercises and organization are of recent date, and very far from putting them, as a body, in a state to cope with the thoroughly trained forces of Russia. Ten, twenty, or one hundred Turks might perhaps be safely pitted against an equal number of men of any other country, but when the contest is with thousands, or with tens and hundreds of thousands, the superior knowledge of the officers and the superior state of the military system generally, with superior equipments and arrangements, depôts and reserves of the opposing power, will place a Turkish army under prodigious disadvantages.

Independent of this inequality, there can be little doubt but that the Turkish force on the frontier will be even *numerically* very inferior to that of the Russians. It may be stated at about 120,000, while their enemy must assuredly be able to muster at least 200,000 serviceable forces for the first grand efforts and campaign; besides which, it is to be feared that the Turks have no reserves, either of soldiers, or stores and equipments.

Under such a state of things it is manifest that

the best policy for Russia would be to use every effort to strike a heavy blow at once; to force the Danube in mass whenever they find the passage most feasible, and by the most rapid and vigorous movements to cut off or thoroughly defeat the divided bodies of the Turks: succeeding to a greater or less extent in that undertaking, they would push on so far as their arrangements would allow towards the Balkan, and take as much advantage as possible of the panic and confusion in Turkey that would be the result.

The course hitherto pursued by the Russians seems precisely adapted to this line of proceeding. They obtained early possession of the Principalities, by which they are at once established on the Turkish frontier, the Danube; they have held them throughout the winter, by the forces just calculated to secure retaining their hold, and no more; so much so, as even to admit of their advanced corps being occasionally insulted and forced temporarily to retire before Turkish attacks upon them; while, in the mean time, they seize on the public treasure in those Principalities, husband the resources in them, which are said to be plentiful, and, according to information, are collecting extensive depôts and means of transport for an advance, with their armies reinforced from the interior, as soon as the season becomes favorable; as that approaches, they will confine the Turks to the right bank, and from three to four compara-

tively contracted positions, will threaten the whole line from Galatz to Widdin.

To whatever extent they may threaten the two flanks, or make partial attacks there, or whatever line they may determine to take for their subsequent advance, the real point where they will make their great effort to cross the Danube with their main forces, may be fully expected to be in or about the centre. By this means the whole of the defensive line of the river will be cut in two; and the Russians once firmly established on the right bank, the Turks must necessarily retire to Shumla and the Balkan; and it is to be hoped, that this will be effected before the detached corps on the flanks shall be too much compromised.

A river of the extent of this portion of the Danube, that is some hundreds of miles, forms no feature of defence to a country: it presents merely an obstacle which some portable bridges in a few hours obliterate. If there were any *strong* fortresses in the line of the enemy's route, they should be well garrisoned, and would be more particularly harassing to an invader, if there was attached to them an equally strong *tête de pont*, so as to secure access to both banks. The best chance of defence on this part of the frontier, would be by retaining a very slight hold on the river, (except where there might be *good* fortresses,) and by concentrating the army in the

rear, ready to fall upon the first advance across it, should circumstances afford a favorable opportunity, which is hardly to be expected.

The first real defence then that it would appear could be prudently made, would be on the Balkan passes: each of these, it is said, presents very strong features that might no doubt be much improved by entrenchments and engineering work of different kinds. It is probable that the line of real attack on the Balkan would be more clearly indicated or more easily ascertained than that on the Danube, and against it the means and forces would naturally then be augmented; still a leading arrangement for defence would be good reserves in the rear, to support whatever part would be found to require it.

It is feared that the Turkish system is not on this cautious principle, but that their forces are very much spread all along the line of the Danube; it is understood that they have a very large force at Kalafat, in front of Widdin, on the extreme left flank, and that its commander proposes to make an obstinate defence there. This might be very good against an insulated front attack, but as the Russians will probably force the centre, the corps at Kalafat would be assuredly cut off and taken in rear, unless it retired in very good time; and at best, would be so many troops thrown completely out of the scene of action. In the early periods, when the Russians were

making their first occupation of Wallachia, and were not settled in it firmly and in force, a *tête de pont*, such as at Kalafat, in any influential position, might be of service by facilitating partial attacks upon them; but when they have brought sufficient troops to ensure their perfect possession and decided superiority of forces in that Principality, such *têtes de pont* would seem to be of little use, unless they were strong permanent works, capable of being defended by small garrisons, and situated nearer the middle of the line.

On the Balkan, it is to be hoped that the Turkish armies would, by due arrangements, be under such great advantages of position as to enable them to make an obstinate stand, and if not deceived in the main point of attack, and thereby enabled to be well prepared to meet it, might perhaps give their enemy a very discouraging check. Still the line is long, the passes must be many, and the enemy still numerous, would probably at length establish himself across it; but, by this time, feeling the effects of the campaign and forward movement in such a country, he would find a difficulty in keeping together such large bodies, in maintaining their efficiency, and obtaining supplies for them. These difficulties would greatly increase as he prolonged his advance. With little or no exterior or even internal commerce, the country it is presumed would furnish very few resources, even for the

subsistence of the troops after entering the Balkan. He would find no great husbanded stores of grain and provisions, such as are met with in other countries, or the little there were would have been consumed in a great degree by the Turkish troops, who will have been before them: the cattle driven out of their reach, or at least very scarce; the means of transport all by land, and with no facilities by great roads; with a large number of sick, which would have to be removed and provided for; with greatly lengthened lines of communication, and various intermediate stations to be protected, amidst a suffering and consequently inimical population, aided as it might be by irregulars; and both flanks on the sea entirely in the power of the allies, from whence the one army would be threatened, and the other greatly assisted. It may be considered that at such a period, a well-prepared field of battle covering the capital, and whose flanks could not be turned, could be relied on for effectually preventing the invader from attaining his great and final object; and there is no doubt but that circumstances afford facilities for the arrangement of such a field of battle along the line of the Carasou river, from its mouth in the Lake of Bujuk Checkmedgè, on the Sea of Marmora, to Kara Bournu, on the Black Sea. The length of this line from sea to sea is 24 or 25 miles; but each flank being covered by lakes and rivers, would be easily watched and

secured, and the extent of the real fighting ground would be by these features reduced to 9 or 10 miles of plain, but with favorable undulations, affording a good command over the front, and which might be improved in strength in a most powerful degree, by a great development of respectable field works.

One most important advantage to be obtained from the occupation of this position, would be, that it covers the entire Bosphorus ; and would therefore enable our fleets to remain masters of the navigation of the Black Sea to the last, and preclude the enemy from the use of it.

To apply the resources of this position with effect, two ingredients must be available ; first, early and energetic measures for entrenching so great an extent, so as to give it the greatest possible strength ; and the other, that an adequate force should remain available for its occupation and defence. The first would require the application of several thousand workmen for several months, and could only be effected by the employment of troops ; but with an understanding that a degree of benefit would be derived from their very first labours, which would be progressively improved to the very last moment. The second would require 50,000 good troops, or a proportionate increase in number of such as might be inferior. These may appear to be heavy demands, but can scarcely be considered so, as

the main and last stand to prevent the fall of an empire!

I cannot admit the reasoning of those, who consider it practicable to make offensive movements upon the Russians in the Principalities. If we have decidedly trustworthy information, that their force does not by much exceed that of the Turkish army on the frontier, and that, according to the argument of those who hold these opinions, any other troops are distant and cannot be brought up, such offensive proceedings might be adopted; but, in the absence of such positive information, to judge from what otherwise *may be presumed* to be the case, it is not to be conceived possible, with all the forces which the enemy has available, and under the prospect, for many months, of the approach of this formidable contest, he should be so backward in his preparations; and should not by the same means by which he has brought the first 120,000 men into the Principalities, cause them to be followed by others in succession; or that any effort the Turks may make, on the present position of the Russians, could be attended with any success. If thrown on the defensive so near his own frontier, after so long a state of preparation, I consider the enemy to be all but invulnerable. Nor is there any degradation in the cautious policy here proposed, which has heretofore been frequently adopted by many great nations and able generals,

to oppose an enemy, who, in the first instance, was overpowering.

We have now to consider the part that can be taken by the allies, France and England, in these and other operations.

Their fleets are already near to, and quite prepared to act in, the Black Sea, where they can render very great services. They will maintain the power to the Turks of a water communication to the frontier of Georgia, while they interrupt that of the enemy, and thus render essential support to the Circassians: they will threaten Sebastopol, which can only be secured from an attack by maintaining a large force in its neighbourhood: they will powerfully co-operate in the operations of first emergency, by securing to the Turk, and obstructing to the enemy, the navigation all along one flank; and the power of approach to the coasts of the Sea of Marmora, and the shores of Roumelia at the head of the Archipelago, will be obtained from their maritime ascendancy. But to retain all these benefits, it is absolutely necessary that we should secure the being perfect masters of the Bosphorus and the Dardanelles: without the first we must retire from the Black Sea; without the last, not only from the Black Sea, but from the Sea of Marmora also, losing with it, even all communication with Constantinople, except by the inconvenient and distant route from Smyrna. And it must be re-

membered, that the Dardanelles, the possession on which everything hangs, *is much nearer for the enemy to gain than Constantinople,* and that his first effort would naturally be made against that station, in order to cut off the communication between Turkey and her allies, and thus preclude all further exertion in her favor.

The only mode of securing the Bosphorus has been adverted to. The situation of the Dardanelles is detached, but presents far greater facilities for its protection, though still requiring considerable means. This is to be effected by occupying powerfully the neck of land, which connects the great European Peninsula (the old Chersonese of Thrace) with the main land. At about seven miles in front of Gallipoli, and near the village of Boulahir, this neck is only three miles wide, being the narrowest part, and presents at that identical part a position that, duly fortified and garrisoned, may be given enormous strength. The whole extent of coast round the Peninsula in rear of that line, would be protected by the naval forces. Large means would be required to be applied to the preparation of this position within a short time ; 4,000 workmen would do it in three months, understanding, as in all cases of field works, that benefit is obtained, even from the earliest proceeding, which is successively improved ; and a garrison of 12,000 good troops would be necessary for its defence, if powerfully attacked.

The use of this position, however, would not be solely confined to securing the retreat of the fleet, but would be very threatening for offensive measures also; it would cover a very extensive district, within which might be rapidly collected by sea, any force that it might be thought advisable at any time to advance, either to the front or flank of the invader, with a comparatively short communication, and secure depôts and retreat; it is, in fact, the point that would form the best base of operations for any forces acting in alliance with Turkey, excepting those which would be applied to the immediate protection of Constantinople; although the water communication would be open to the Gulf of Enos, and, perhaps, up the Maritza, the depôts, hospitals, reserves, &c., should be established on this Peninsula.

To return to the consideration of the defences for Constantinople. A second line has been designed round the city, at only a mile or two in advance; this has been what, till a recent period, has always attracted notice, and to which alone attention was turned. The ground is extremely favorable, and affords great advantages to a defender, as well around the city itself as its suburbs beyond the Golden Horn; it would cover the whole space from the Sea of Marmora to the Bosphorus, and well entrenched, would be capable of considerable resistance, but it has several defects.

1. It can hardly be deemed sufficiently extensive and influential for the last resort of a great army.

2. It would be too near to the city, and the proceedings and feelings of the forces would be greatly influenced by the turmoils, panics, insurrections, treacheries, and confusion of the place, so much so, that no vigorous defence could be expected from it.

3. It would be considered as a last hold, and merely as a point for surrender.

4. It would not cover the whole of the Bosphorus, and, consequently, it would necessitate the evacuation of the Black Sea by our fleets, and give to the enemy the vast advantage of its navigation between their own territory and their advanced position.

On these accounts I attach no value to it whatever, provided the Carasou position be taken up. At the same time I am bound to admit, that a contrary opinion is held by officers for whose abilities I have great respect: they consider that it might check an enemy from entering the city, even if he succeeded in penetrating the great line. My great objection is, that whatever efforts and means are applied to the protection of this position, which I hold to be of very inferior importance, must be taken from those available for the other, which is the vital station.

With regard to the extent to which the forces

of the allies could be brought to act in the cause, and where they might be applied to most advantage, *the answer would depend upon the amount that the two governments might be willing to employ.* From 5,000 to 100,000 troops might be of great service, the larger the number the better. If the force were only from 5,000 to 12,000, I would recommend their services being exclusively engaged to secure the Dardanelles: an additional force of 25,000 might form a valuable nucleus for the preparation and defence of the position of the Carasou. If a larger army could be collected, it would join and act in conjunction with the Turkish forces in the Balkan, for which purpose their best landing place would be the Gulf of Enos, proceeding to Adrianople up the Maritza river, or they might act elsewhere, according to the circumstances of the time.

An idea is suggested that the Russians, on the understanding of the preparations by the allies, may content themselves with remaining in quiet possession of the Principalities, and thus gain an absolute advantage.

It is not for me, taking in view *military* operations only, to judge of the effect of such a course, further than to give an opinion, that I am not aware of any military measures that it would be desirable to attempt to drive them out, without the co-operation of Austria. The question is rather political than military; but it would appear

to me, that by so doing, they would virtually abandon their cause for war, and would suffer more in prestige than they would gain in substance.

OBSERVATIONS ON PRESENT CIRCUMSTANCES OF THE ALLIED ARMIES BEFORE SEBASTOPOL.

Camp before Sebastopol,
15th January, 1855.

The allied armies in the Crimea have before them the prospect of a still more prolonged struggle through great hardships and difficulties; nor do I conceive that any effort of the respective generals could, with the means in their power, have prevented it.

After the battle of Alma, the Russian army retired upon Sebastopol; and, during the interval before the allies could follow them, made their distinct arrangements for the defence of the place, and for the army that should keep the field, which latter was moved out on the 25th September, towards Bakshi-serai. On that same day, the allies cut into the same road on their march in the contrary direction towards Balaklava, the Russians having passed the point of junction, at Mackenzie's farm, some hours earlier. Had the allies been one day earlier, or the enemy one day later, they would have met; and it is needless to contemplate what might have been the succeeding course of events.

When established on the south side of the place, a reconnoissance was made, and a decision come

to, that the two battering trains should be landed, with a view to endeavour to make such impression on the defences, as might justify an assault. The batteries opened on the 16th and 18th of October, and continued their fire with activity day after day, until the first supply of ammunition was nearly expended,—when, the result not being favorable, it has been reduced to an occasional shot or shell now and then, as circumstances seem to require, and so it continues up to the present time; the intention having been, at the first cessation, to await for increased forces of troops and artillery, which were expected, and then, to renew the same attack with increased vigour.

In the meantime, while this course of proceeding was in operation, and when the allies had their then moderate force deeply engaged in the maintenance and protection of their various batteries and trenches, which were extended round a considerable circuit near the garrison, the enemy's army in the field was brought up, to call their attention off to the safety of their depôt, their camp, and rear.

The first active operations to this effect were commenced against Balaklava, the Russians having marched down a large force, on the morning of 25th October, and at once gained possession of an advanced position, that was imperfectly occupied and guarded by a body of Turkish troops; from thence they pushed on to an influential point of the

main line of defence; but, being checked by the brilliant charges of the British cavalry, and the firmness of a regiment of infantry, and reinforcements having been sent down from the camp, they discontinued any further effort, and took up a position close in front, in which they remained in a threatening attitude for a considerable time subsequently.

On the 26th, the day after the attack of Balaklava, they made a heavy sortie from Sebastopol, with 4,000 or 5,000 men, on the extreme left of our front towards the place, which attack was completely repulsed.

The object of this sortie does not appear very clear. It could have no very damaging effect where it was made; neither trenches nor batteries were exposed to it; but, being directed upon the very camp, it was certain to be overpowered at last, even if not repulsed in the first instance, as it was, by the few troops that were at once collected near the spot. We can only suppose that it was meant to recall the attention of the allies to the front of the place, and so check their sending reinforcements to Balaklava, which there was evidently a great disposition at that time, on the part of the Russians, to attack, as may be judged from the force they kept close to it, and the earnest reconnoissances made repeatedly on every side by superior officers of their army. The difficulties, however, were probably considered too great, for the attack never was made.

The next attempt was once more against the other flank of our line facing the country, opposite to which, on the heights of Inkerman, the Russians brought up the main body of their forces; and on the 5th November they attacked with their collected army, combined with a large part of the garrison, with which they formed a junction on the line of communication which had always been open to them.

It was manifestly their intention to have established themselves on the ridge of heights which they attacked, because they had absolutely a number of carts with entrenching tools and materials, close up with the troops, some of which were taken. Had they succeeded to that extent, they would have turned our whole position and occupied one flank of it on commanding ground, and the result must have required very heavy sacrifices, perhaps that of all our battering train, to have dislodged them, which would have been absolutely necessary to save the combined army from utter destruction. The enemy however having been completely defeated and with very great loss, the whole face of circumstances became altered; and although it entirely relieved us for the time from the pressure of the attacks, or even serious threatening from the army outside, and gave us possession of more favorable ground, not only for self-defence, but for approaches towards the fortress, it did not assist in accelerating our progress against it.

The result of this battle was to preclude the possibility of their making any further attempts with their army in the field for the remainder of the season; and therefore, while holding their ground outside for a time in sufficient force to prevent any attempts, which the allies, engaged as they were in siege operations, could make upon them, every observation and information leads to the persuasion that they strengthened the garrison by reinforcements, and adjusted every supply of ammunition, provisions, &c., between it and the army; and as the bad winter weather by degrees rendered the country more and more impracticable for field movements, so have they added to the garrison, to the reduction of the army, giving the greatest possible strength to the former, against which alone it is possible for us to carry on any proceedings; — and thus the greatest power of resistance given to the place, is at the very time that, on account of the difficulty of transport and deep state of the country, without roads, the smallest amount of means can be collected for the siege operations.

During the first period of the allies being before Sebastopol, that is, until after the battle of Inkerman, their weakness for the particular operations then in hand, as compared with the strength of the enemy, would not admit of their occupying the whole of the ground, even on the south side of the great harbour; and the ridge and a high road

along their right flank was always in the power of the enemy, in consequence of which the attacks on the right were restricted to one narrow front near the centre of the place, and although connected with the French approaches on their left, were directed into a re-entering angle, strongly entrenched and armed.

This great disadvantage was submitted to as a case of necessity, and while the operations in the open field caused the garrison to be of limited amount; but so soon as the result of the battle of Inkerman opened the field for an extension in front of the most favorable side for attack, by the tower of Malakoff, and that it was evident that the garrison was of greatly increased strength, it was submitted, that a continuation of the original restricted project would be attended not alone with risk, but almost certainty of failure; and therefore it became necessary, as was maintained on the part of the British general, to carry into execution an extension of the attacks so as to embrace the front of the tower of Malakoff.

This modification of the original project, which could not have been previously contemplated because the allies had not possession of the necessary ground, is still attended with two inconveniences.

One, that it requires additional works and additional means, which are most difficult to collect at the camp during the winter season; conse-

quently causing very great delay, during which the troops are under a dreadful state of deprivation and hardship; and the other, that the French, having in contemplation the first project, have for a long time had all their batteries fully armed, long before those of the British, even on the first plan, could have been prepared; and occupying very extensive trenches, some of which are close to the place, they feel the great weight of the charge of maintaining those works, by very large guards of the trenches, who suffer severely from the inclemency of the weather, as well as from the sorties and fire of the garrison.

Even these evils, serious as they are, it is conceived, are preferable to a rash assault, which, should it end, as confidently anticipated that it must do, in a repulse, would not only take from us the prestige of the superiority in arms which we have, up to this time, maintained, but reverse the entire prospect of final success in this country, and throw us into a state of a very disadvantageous and discouraging defensive, from which it would be most difficult for us to extricate ourselves. If we can, on the other hand, maintain our present strength of troops, which should be ample to secure us from any efforts of the enemy, till the spring, we may expect that the exertions of France and England will afford means for pursuing operations against the enemy, that, with the brilliant conduct of the allied armies, may give

every prospect of leading to thorough success; and, in the mean time, every effort will be continued that the disadvantageous circumstances will allow, to forward the proceedings against the place. But while the wants of the troops are so great for the essentials to existence, of food, fuel, warm clothing and shelter, it is impossible to think of accelerating the acquisition of the necessary means of offence, or to contemplate the time it may take to procure them.

The task on which the army has been set, was beyond the means which it ever had available at one time; nor can I perceive by what other modes than were attempted, we could have had any better chance of taking Sebastopol. Every artillery and engineer means were exhausted; and, therefore, nothing remained untried but an assault, which must have been given from a distance, over open ground, by a narrow front, exposed to a heavy fire of artillery, not only in front, but on both flanks, and which, being at least double the force of that of the assailants, could never be silenced. The troops would then have to encounter obstacles of ditches, stone walls, and fougasses, although each was not of a very formidable character by itself, but serious when backed by a garrison (exclusive of seamen gunners) of from 20,000 to 30,000 troops well equipped and organized, animated by a great degree of enthusiastic spirit, and maintaining a free communication with a supporting army

in the country. The consideration was not whether the place should be stormed at a loss of many thousands of men, implying the taking of it at that loss, but whether the almost certainty of a repulse attended with the same loss, should be incurred; for where was ever such an attempt successful? We know of many instances of failure, even by British troops, under far more favorable circumstances; and there are none on record of success under any thing approaching to them.

It can hardly be necessary to calculate the consequences of such a failure; and, therefore, whatever the hardships, deprivations, and sacrifices the troops may sustain in their present position, which must be alleviated by every possible means, even they, it is submitted, are rather to be endured than to incur the consequences of so desperate an enterprise as an assault at the present moment.

Great stress has been laid, and with much justice, on the want of proper means and organization in some important departments of the army.

It is not necessary here to seek for the causes of these defects, the main one, however, being assuredly the want of habit of the British army to undertake prolonged campaigns in force, and the disinclination of the country to maintain expensive establishments for such rare occasions. But the fact is so, and though very great inconvenience, hardships, and even mortality have been the consequence, we cannot trace absolutely to that cause

the delay in the fall of Sebastopol. One very essential disadvantage under which the allies have labored, has been that the garrison have always had, and still maintain, a free communication with the country and with their army in the field, enabling them to combine and interchange every resource at will.

On the whole, it may be affirmed that while, from want of means at the moment when they would have been available, it was physically impossible to complete the great undertaking in which the allied army has been engaged, until winter has set in, and virtually stopped the proceedings, its struggles against opposition and difficulties have been energetic and unremitting, not excepting on the part of those who are in authority, and have had the general control and direction, and that it could not, up to this time, considering the circumstances, have attained a better condition, as to the ultimate success.

With regard to the future, it is now manifest that the progress towards the reduction of the place must linger on, and it is not to be expected that any decisive measures can be renewed until the country becomes more practicable for traffic, movements, and exertions, than at present. In the mean time the allied troops must hold on as they best may, alleviating, as much as possible, the hardship and difficulties under which they suffer : and if it be allowable to indulge in surmises on certainly very

imperfect information, I would be inclined to anticipate that by great exertions they would have the power of entering into active operations in considerable force, earlier than the Russians; and that they might take the field at an early season, with a force equal to encounter the enemy's army outside with success, independent of a besieging and blockading force, and thus oblige them to take a decided and unalterable course, either to weaken the garrison or the army, while they lost the intercommunication between the two; either of which courses might be turned to good account by the allies.

It is to be observed that the military position of the Russians in the Crimea, is, in one respect, highly disadvantageous to them; namely, in having no successive bases of operation to fall back upon. Their main holds, their depôts, and reserves, seem to be all at Sebastopol, Bakshi-serai, and Simpheropol, within a comparatively small compass: once driven from these, which one successful battle would effect, they can have no resting place left in the whole of the Crimea.

ON EARTHWORKS AND THE DEFENCE OF SEBASTOPOL.[1]

Some erroneous conceptions have gained currency of late in England, (for abroad they have no idea of the kind,) that the prolonged defence

[1] Published in the *United Service Magazine* of November 1855.

of Sebastopol has been greatly due to the superiority of earthworks over those of masonry,[1] and the ability with which the Russian engineers have availed themselves of that discovery, as it is assumed to be.

A few years ago, this point was strongly advocated, and warmly discussed; and now that a brilliant defence has been made at Sebastopol, and that earthworks were employed there, a deduction is endeavored to be drawn, that it is a triumphant proof of the soundness of the arguments of the supporters of that system, with which it has, however, no connection whatever.

The Russians had to raise their works of defence on a sudden emergency, and with rapidity, and they adopted, in this respect, the means employed time out of mind—namely, earthworks; and not from choice, but for the best of all possible reasons, that they were the only ones open to them; and, in fact, the great credit which is undoubtedly due to the Russians, is not for their ingenuity in employing earthworks, but for their energetic defence, notwithstanding the weakness and imperfection of such works.

The leading arguments against masonry are that, besides its great expense, it can be battered

[1] By "works of masonry" are meant those in which the rampart of earth is supported by a wall of masonry, as in modern systems of fortification, in contradistinction to works of earth only, where the rampart is continued at the natural slope of earth to the bottom of the ditch.

down from a distance, and that the splinters from it are more injurious to the defenders than the shot and shells ; but it must be recollected that these evils are not a necessary part of masonry works, but where they exist are usually unavoidable, either from occurring in fortifications of very old date, or in confined situations, where there is not sufficient space for the regulated course to be pursued—namely, of sinking the wall below the level of the ground, leaving the parapet of earth alone exposed to view.

If the system of earthworks is to be taken as a modern improvement, it must be as compared with that previously established in modern times by military engineers, which implies, always as the rule, parapets of earth, and escarp walls, well covered from exterior view, till only the breadth of the ditch intervenes. This at once and entirely removes the two evils above adverted to.

One of the principal ingredients in defensive works is an obstacle to the approach of the assailants, and the best obstacle is a wall or vertical face to be surmounted. If this exceeds 30 feet in height and is flanked, it becomes very formidable indeed ; an escalade (which, while the wall is entire, is the only resource) is the most desperate of military undertakings, and never succeeds but by absolute surprise, or from very great weakness on the side of the defenders.

The consequence is, that it is necessary to have

recourse to a breach, but, in such well-covered works, the breach can only be formed by batteries established at the edge of the ditch, and it is well known the vast increase of difficulty that the besieger finds, in proportion, as his approaches and batteries get nearer to the place; and, after all, the breach or breaches being made, he has only the limited extent of those openings as an ingress, whereas the earthworks present one universal breach throughout the whole extent of the place. The entrance into the place is, in fact, reduced at the breaches to what the earthern escarps were from the commencement everywhere.

Apply this reasoning to Sebastopol. The French, by immense efforts and sacrifices, gained lodgments at 30 yards from the ditch of the enemy's works. It is stated that the difficulties so multiplied upon them, that it would have been almost impossible for them to have established themselves nearer; and yet, had the place been fortified by the ordinary description of permanent works, it would have been necessary to have placed and maintained breaching batteries on the very edge of the ditch, by which openings of only a definite extent could have been made, which never could have afforded space for the heavy assaulting columns by which alone the place was taken. The retrenchments also within the outer line would have been of the same character, and their escarps would have been entire.

I have not adverted to the question of opening such a place by mining from any distance. In the first place, offensive mining may be checked and impeded by an underground contest with great facility; secondly, it is extremely difficult to open a practicable breach by mine: it is only to be effected by an enormous chamber and mass of powder, which would greatly increase the difficulties. Then the opening will be even more limited in extent than if effected by cannon; and if the assault is to be made from a distance, it has still all the unknown intermediate impediments to be overcome to arrive at the breach.

Although the masonry in fortifications should be well covered from distant cannonading, there are many occasions where this property must be dispensed with, or may be so with propriety, and the cases are chiefly in sea-batteries. A very small island or rock, or point of land of very confined space, may be in a most influential position for opposing the approach of an enemy's ships, yet may barely be of sufficient size to hold a tower, large or small, upon it. The guns, however, may be multiplied by applying several tiers of them on a high building; and such constructions, although defective, and to be avoided, if possible, with all their systematic evils, have often a most powerful effect. It is quite a mistake to suppose that they can be readily destroyed or silenced by the most powerful shipping.

1. Unless the ships are very close, (say within 200 yards,) their fire will be weak, without precision, and ineffective. No other conclusion is to be drawn from the deliberate practice at a target, for in this case they will be in action, and surrounded by the opaque atmosphere created by the smoke. The inaccuracies will be still greater if the ship guns require precise but varying degrees of elevation. The gunners from the tower, on the contrary, have other and far better guides for their fire, the masts for instance, and all the advantage of the ricochet.

2. Every shot (some of them perhaps red hot) and every shell that hits the ship, must do great mischief. Any one may cause her utter destruction, while a very large proportion of those which hit the tower will occasion no damage whatever.

3. The ship, in its approach to take the very near station necessary to produce effect, will have to sustain a damaging fire, which it is then peculiarly unable to return; and even although there may be ample depth of water, that fire and the smoke will themselves be great impediments to venturing into such close proximity to the shore.

4. The breaching of a substantial wall, of even six or eight feet thick, requires a very great deal of close and precise battering, and therefore the ships must be engaged for several hours in this disadvantageous contest to effect the purpose.

Thus against shipping the exposure of the masonry may be admitted to be of little comparative importance. Nor is it to be held as a positive fact that earthworks do not suffer from being battered. Earthen parapets, for instance, are utterly destroyed in sieges by the fire of shells, and so levelled as to afford comparatively no cover at all.

But there are many other instances besides sea-batteries where exposed masonry walls are admissible, indeed often essential. Thus it sometimes occurs, that all which is required from a fortified post is security against a *coup de main*, as in cases where circumstances will not admit of the action of artillery against them. Likewise where the object of the work is attained if the enemy is forced, perhaps with much difficulty, to bring up guns to the spot, or in the case of the gorges of outworks, which it is expedient should be exposed to your own artillery, simple masonry walls are preferable to earthworks.

The energy displayed in the defence of Sebastopol does great honor to the Russian army; but it may be well to reduce that merit to its proper limits, and not suppose that either in skill, labor, or bravery, they surpassed the allies. Warfare is a difficult game, and, as with players at chess or whist, that general is the best who commits fewest errors.

The siege of Sebastopol exhibited, no doubt,

errors on both sides; but while those of French and Russians were tacitly submitted to, as of unavoidable occurrence, and amply compensated for by general merit, attention has been loudly called to innumerable lapses on the part of the British, some well founded, but very many emanating from the minds of critics who had no knowledge of the business of which they constituted themselves supreme judges, nor made any allowance for the circumstances of the case. For the defence of Sebastopol the enemy possessed immense advantages: 1. The positions all around it were exceedingly strong in features, and in many parts presented a very rocky soil to the attacks. It is true that it was not regularly fortified; but there were, along the front, substantial towers, old walls, and strong buildings, that could be turned to good account against any attempt at a *coup de main.* 2. It had within it, not what could be called a garrison, but *an army* of not less, probably, than 25,000 men; it was, in fact, not a fortress, but an army intrenched on a very strong position, along a line of moderate extent, with its flanks perfectly secure. 3. It contained the resources of a very large naval and military arsenal —probably the largest ever collected in any one place—with those of a fully manned and equipped fleet of fifteen or sixteen sail of the line, besides other vessels, which furnished, in addition to the material, not less than 10,000 good seamen gunners,

quite competent to every service of batteries. 4. Over the flank, on which was decidedly the front for attack, they held the commanding ground on the opposite side of the harbour, greatly in advance of their line of defence of the south side; so that the attacking party in their approaches were taken in flank and rear for a distance of not less than 2,000 yards from the place. Although the range from that side was considerable, and much cover was afforded by the undulations of the ground, still, from the circumstance, and the very great command possessed by the enemy of artillery of the heaviest nature, this advantage caused great annoyance to the allies, restricted them from availing themselves of many otherwise favorable sites for batteries and works, and acted as a powerful support to the defence. 5. The force of the allies was too small to make it possible to invest the place on both north and south sides (and there cannot be a doubt about the propriety of choosing the south); the consequence was that the communication between the place and the country, in which they had a manœuvring army, was free and unobstructed for the whole period of the siege; the garrison could be augmented, reduced, or relieved, at pleasure; every supply could be sent into it, and sick, wounded, and encumbrances removed from it at will. Nor should it be omitted, among the advantages, that the town and buildings in general, many of which were very

substantial, though not absolutely incombustible, were of such a nature, that no great efforts were required to prevent the fires from spreading.

It may not be inappropriate to add here a few remarks on the propriety of an attack on Sebastopol by a *coup de main*, when the allied armies first appeared before it. There have been murmurs against the generals-in-chief for not having done so, on the faith of an opinion assumed to have been given by one of high rank and well-deserved reputation, who has since unhappily fallen. If he held that opinion, we have good reason to believe that he never announced it to Lord Raglan, so that it might have been discussed, as it surely, in that case, would have been. We are decidedly of opinion that the generals in command would have acted most rashly had they made such an attempt, that the prospect of success was small, and that a failure would have been fatal.

It would be foreign to the object of this article to go into the question of the propriety of a more rapid advance from the Alma, or whether a due regard for the sick and wounded and the difficulties of provisioning and of transport were a sufficient justification for the delay of four or five days that intervened before the allies reached the ground in the immediate front of Sebastopol. We are to take up the circumstances as they then were, the question being, why the place was not assaulted *when* the army did come before it.

The allied armies then consisted of about 50,000 men. The Russians could not have had less than an equal number of infantry, (every report gave larger numbers,) including their seamen, who are notoriously, in the Russian service, thoroughly practised as soldiers, and, being moreover good gunners, were particularly valuable in a defensive position. They had also a very superior force of cavalry, a very large proportion of field-artillery admirably horsed, a thorough knowledge of the country, and were masters of all its resources; in all which the allies, recently disembarked, were necessarily very deficient.

The first object of Prince Menschikoff, after the battle of the Alma, must have been the security of Sebastopol, with its fine fleet and valuable and extensive arsenals. Accordingly he made a hasty retreat on that place to forward arrangements for its defence.

Had the allies followed in the most rapid manner consistent with order, and found the great body of the Russian army in the place, what would have been the consequence?

It must be borne in mind that, even in that case, there would have been no longer the *confusion* of a routed army, but ample time for reforming the different regiments and corps; they would have occupied the strong position as above described (on the north was one equally strong and of a narrower front), and have been unattackable. To have attempted

to have shut them up there was utterly impossible. The line to have occupied would not have been less than from 15 to 20 miles in extent, separated by the deep valley of the Tchernaya, against any part of which position the enemy might have concentrated an attack with nearly their whole force. Thus the communication with the interior would have been fully open to him on the north or south, and he could equally have divided his forces whenever he pleased.

Prince Menschikoff's arrangements, however, were completed before we made our appearance, and a portion of his army was moved to the interior. The allies, in their forward movement, came upon their baggage at Mackenzie's farm, and reconnoitred their force, which appeared to be about 15,000 men. This, and the vast importance of retaining Sebastopol till reinforcements could be received, leave little doubt but that an ample garrison would be left in the place, and could not be estimated at less than from 25,000 to 30,000 men. These would be posted along the very strong positions round the place, on which, even at that early period, some heavy guns were mounted; and with a great available power of field artillery to command the bare open country in front, and some slight earthen parapets for cover, in addition to the defensible towers, walls, and buildings. With our backs to the sea, and an enemy's force at hand of a description not to be

despised, to have made such an attempt would have been a most unjustifiable act of extreme rashness, and have compromised the safety of the whole army. On the other hand, we had a fine battering train at hand, with which we might hope to make an effective impression, and, at all events, without the desperate risk of the other course.

And what are the arguments on the other side?

First, a reputed vague expression by one who, it must be admitted, was a very able man and a good soldier, that such an attack might have been made; but, as far as we can learn, without any reasons being given founded on any good knowledge of the circumstances, or much consideration; and it is somewhat remarkable that this very officer had himself served with the Russians, and, though he did his duty most gallantly against them, had an enthusiastic admiration of their military qualities or organization, and who had constantly in his mouth, in reply to the least disparaging remark, "Do not despise your enemy, sir; I know the Russians well, and they are not to be taken liberties with," &c.

Secondly, the reports from deserters that the place was very unprovided with artificial defences when the allies appeared before it, that the troops were discouraged by the results of the Alma, and expected that it would be carried by assault.

Such are the kind of reports that are almost always given by deserters, but in this case in a

great degree true. The same men, however, estimated the number of the garrison far higher than has been above stated, no doubt in good faith, although probably much exaggerated. It proves, however, sufficiently, that it must have been very large. The opinions, besides, are those of the common soldiers, and those of the peculiarly ignorant class of the Russian soldier. That *they* may have entertained an unfavorable impression of their situation, may very likely have been the case, but we have every reason to think—nay, to be assured—that they were not *disheartened* so as to admit of acts of extreme rashness to be undertaken against them. Certainly no troops bear being beat like the Russians. After every defeat —Alma, Inkermann, Tchernaya, &c.—they rise again with a noble infatuation, and every succeeding action has been fought by them with as much spirit, discipline, and energy as its predecessor.

Thirdly, we have in favor of this measure the opinions of many "gentlemen of England who live at home at ease," that nothing great would be done in war if you look too narrowly at the consequences of failure, which may be granted. That it would have been a magnificent acquisition to have obtained Sebastopol, which may be also granted; but that it ought therefore to have been attempted, is denied. That great acts have been performed by energetic generals

and admirals, which inferior characters would not have attempted,—granted, on the understanding that there was always some reason in their actions. But then comes the deduction from these data, that they are a justification for the most desperate proceedings, and that nothing is impossible to a great man, which is utter nonsense. There is not a man quoted as the hero whose actions are to be followed, but has shrunk from attempts like the one here proposed.

The criticisms passed on the British officers and on the military proceedings in the Crimea by some individuals, have been far too severe. They show a disposition, whether intended or not, utterly to disparage everything connected with the military service. In fact, the facility and brilliancy of pointing out supposititious errors, instead of the dull matter-of-fact assumption that duties may have been well performed, is very tempting.

One mode of detraction is to advert, in flaming language, to the superior manner in which the Russians carry on their operations, and what superior ability and labors they have exhibited in their defence of Sebastopol. We are far from wishing to retaliate by language of disparagement on their merits. Their officers and men have exerted energy, skill, and bravery, and deserve well of their country; but they also have committed their errors, and we cannot allow them to be

considered as our masters in skill any more than in courage.

We have before adverted to the credit given them for the adoption of earthworks, and shown that they had no other resource; and it would almost seem to have been a species of compulsion with them, for it is somewhat remarkable that the Russians appear to make use of exposed masonry in fortification more than the engineers of any other country. Their sea defences are almost exclusively of that description, not always on the absolute necessity of circumstances, but frequently where the shores present commanding sites, well adapted to powerful earthen batteries. But there is a still more striking proof in the very position that has given rise to the discussion. The great tower of Malakhoff, of only ten years' standing, was most injudiciously devised. It certainly would have acted as a great support against an early assault of the position, although it might have been greatly improved for that object, but against approaches and batteries it was worse than useless. It was immediately silenced, and very soon extensively breached; its ruins must have been very embarrassing, and it must have cost much labor to put the lower remnant of it in a shape to have been in any degree useful. Had the same expense and labor been applied towards the construction of a good fort or redoubt on that hill, on the modern principles, of about 700 yards

interior periphery of parapet, (which appears to be about the size of the work actually constructed during the siege,) escarps and counterscarps revetted, earthen parapets, and caponière flanking defences, and the interior with sufficient traverses and casemates, most certainly the attack of it would have been attended with far greater difficulties than as it actually existed; and we all know the efforts that, even in its actual state, were required from our gallant allies to obtain possession of it.

It will hardly be considered an excuse that this tower was given to the empire by the munificence of an individual whose name it bore, because, though the funds were provided by him, it was designed and constructed by the Russian military engineers.

Then we hear a great deal of the "*gigantic*" works raised by the Russians. No doubt they were gigantic; but how could they be otherwise by the labor of 25,000 men for a twelvemonth? And what were the works of the allies but gigantic? If the number of miles of trenches, the batteries, and guns mounted, and the defensive works, were enumerated, the aggregate amount would appear enormous.

Then the works of the Russians were of comparatively limited extent. They had a few leading points on which their greatest efforts would be concentrated, such as the *Bastion centrale*, *Bastion*

du Mât, the Redan, and Malakhoff, &c.; and each of these would naturally present a formidable aspect.

The Russians, moreover, were but a short distance from, and with good roads to, their resources, which were in perfect order, and included abundance of timber, while the allies were seven, eight, and ten miles from theirs, with a great height and terrific roads intervening.

There is some confusion in the ideas formed of the character of the Russian works. We hear of the wonderful labyrinth within them to obtain bomb-proof cover, and adding, as commonly supposed, to their defensive power; but this, it is apprehended, is not the case. These improvised casemates must have been very necessary and judicious, but they must have been rather an encumbrance to the defence, and quite inferior in that respect to the arrangement of the regular permanent work, as above suggested.

Altogether, although we would give to the enemy every credit for their manly defence of Sebastopol, we must claim for the allies, and for every branch of their services connected with the attacks, the merit eminently due to them for their energetic exertions.

THE WINTER ENCAMPMENT IN THE CRIMEA.[1]

There is great danger in many of the measures which were hastily adopted for the relief of the troops being made into a precedent for future occasions; if the proceedings of the committee are to be useful as a guide for the future, and not solely to attach culpability for the past, it would be very desirable that such a mistake, if, as I think, it be so, should be pointed out. Extraordinary means were applied, in a hurried manner, for an extraordinary occasion; and it was not unnatural that mistakes should be made, as, I think, was the case in sending out the huts, as well as the railway, &c.

With regard to the huts, for instance, it was an excessive effort of precaution, to think of sending out barracks (for such they may be considered) to an army in the field, when an equally good effect could have been produced, as regarded the welfare and comfort of the troops, by an additional provision of tents, and a little planking to cover the damp ground. By doubling the tents, the old tent being one of the two, they were made warm; and the planking, framed for the purpose, would have formed a dry sleeping-place. The huts weighed at the rate of two

[1] Extract of a Letter written to Select Committee of the House of Commons on the Army before Sebastopol.—EDITOR.

hundred-weight for each man, while the second tent and boards would not have exceeded one-tenth of that weight — a matter of immense importance. They could have been more rapidly provided, and they would have been removable, which the huts were not, and would have remained subsequently an useful article of military store. A moderate supply of the huts might have been useful for a few temporary hospitals, as well as at Balaklava, for stores, stabling, &c.

I had an opportunity of stating my opinion, in answer to one question, that I thought that if means were to be sent from England for the purpose, it would have been better to have expended them in making an ordinary road, and adding more means of ordinary transport, than in the construction of a railway, and I think it cannot be too strongly enforced. One great advantage of that arrangement would have been, that so large a portion of the means thus employed, namely, the whole of the carts and horses, &c., would have been generally and subsequently available in a matter where the greatest want is felt, and not definitively fixed to one precise locality.

The employment of masses of civilians, for work or other purposes, with an army is most inconvenient and objectionable. There was some excuse for applying it as an expedient on this particular occasion, from the inadequacy of our army to meet those necessary demands; but an

additional number of troops, even for these services of labour, would be far preferable, and a very large number of sappers would be of peculiar utility for the many services they could render, while they, or any description of troops, would add to the strength in the field against the enemy whenever requisite; while the 400 or 500 fine manly fellows of "navvies," were to have remained of no service, with their arms folded, and, at such a moment, rather an incumbrance than otherwise, even if Balaklava itself, in which they were residing, were attacked. Turkish and Tartar workmen were even much worse, in many respects.

THE EMPEROR NAPOLEON'S PROJECT FOR OPERATIONS IN THE CRIMEA.[1]

A document has very recently been published in M. de Bazancourt's *Expédition de Crimée*, which has created a great interest in the military world, being a project for carrying on the war in the Crimea, drawn up in April 1855, by no less a man than the French Emperor himself.

Anything emanating from such a hand, or, rather, from such a head, must meet with great respect. Of the most elevated station, acknowledged to be possessed of the highest talents, eminently successful in all his undertakings, and

[1] Published in the *United Service Magazine* of June 1856.

having peculiarly turned his attention to military matters, his opinions must carry extraordinary weight, and are likely to be adopted as law. The impression seems to be very much to that extent, and that we have now laid before us the course that we ought to have pursued a twelvemonth ago. But, as there is no royal road to literature, so there is none to the art of war: a thorough knowledge of it can only be gained by intelligence, study, and experience. Of the two first there is decidedly no lack in the Emperor Napoleon. With all his advantages, however, he throws down the gauntlet, and, like a person of inferior station, submits his project boldly to be canvassed by the world in general; for, it is evident that M. de Bazancourt could not have published it without direct authority. It would certainly not be becoming in any military man in the French service to presume to give any opinion on this project, except in the tone of thorough eulogy; therefore, we shall not have on the subject the advantages of the judgment of the high military authorities of that country, who, in every respect, would be so competent to the task. But, in the interest of military science, it is of importance that discussions should be raised on this matter; and we trust that no want of respect will be implied if arguments be founded upon it as an abstract military operation of much interest.

It is evident that the Emperor not only attached

at the time a high value to his project, but continues to entertain the same idea, by allowing it now to be divulged without comment; and the question arises, why was it not carried out? M. de Bazancourt gives some very indistinct references, and no reasonings on the matter. But, by inference, it is *implied* that Lord Raglan refused his assent to it; whereas the *direct* complaint is, that there were general differences of opinion between the generals commanding, and a want of co-operation on the part of Lord Raglan generally in the views of General Canrobert. This is imputed against the former as a crime; whereas, where differences do occur, the want of co-operation is mutual, the error must be on the side of the one who objects to the best plans, and it is somewhat unreasonable to assume that those must necessarily be those of the French; and we must here at once protest against taking the authority of M. de Bazancourt as the historian for the allies. We have no right to object to him as the chronicler of the French proceedings, or of the merits of the French officers—(so universally eulogized as to impress the reader with the idea of absolute perfection in every person and act)—if his countrymen please to attach faith to him; but his comments on the British, in all matters except their bravery, which he could not dispute, are distorted, their proceedings depreciated, and his assertions regarding them altogether

untrustworthy; insomuch that we think there is some reason to complain of the apparent sanction of the French government being given to such a publication. Nor must he flatter himself that counter-attacks could not be made, if we chose to adopt the same unworthy spirit.

General Canrobert's explanation, that the execution of the Emperor's plan of campaign had become almost impossible by the non-co-operation of Lord Raglan, with its context, evidently refers rather to general disagreement than to a direct rejection of this project; and, indeed, in that respect, the matter would have been readily settled by instructions to the same effect to Lord Raglan from his own government. Such instructions however do not appear to have been given, nor even his serious attention called to it, although a few days before the date of his letter the Emperor was in England, and, with his war minister, in close personal communication with the British government.

Wherefore, then, was not this project adopted by the British government, and strongly urged upon Lord Raglan? We will assume, in answer, that our government would, of course, communicate it, if known to them, but would have left to the generals on the spot, who alone could judge of its advantages, to take it into consideration; and we have as little doubt that the circumstances in the

Crimea would show that it was deemed unadvisable.

The Emperor assumes the relative forces to consist of 100,000 French, 25,000 British, 15,000 Sardinians, and 40,000 Turks—in all, 180,000; and the Russians to have 120,000, including 15,000 in front of Eupatoria; the siege of Sebastopol being then well advanced; and he considers it absolutely necessary to engage in operations against the enemy in the field; and here commences the first ground for discussion. During the operations of a great siege, we shall find, from experience, that the object has always been to make that undertaking the primary consideration, and to act only defensively against any army the enemy might have in the field, to the extent of preventing his disturbing the siege from thence.

If the enemy's army cannot be thus resisted, the siege is necessarily abandoned, and the forces collected for operating in the field; as was done with admirable effect by Napoleon I. when besieging Mantua.

No such case, however, existed at Sebastopol. The allies held a position that might be considered, with their forces, impregnable, and that completely covered the siege, with a base within it from whence every supply could be obtained; the result of the siege therefore was, sooner or later, a certainty, as the event proved.

Having, however, adopted the view that it

was necessary to take the offensive against the enemy in the field, the allied armies were to be divided into three bodies; one to consist of 30,000 French and 30,000 Turks, to watch the place; the second of 25,000 British, 15,000 Sardinians, 5,000 French, and 10,000 Turks, to act defensively on the Tchernaya, and co-operate, in case of need, with the active army; and the third of 65,000 French, to be an army of operation, to act on the rear of the enemy; of the latter, 25,000 to be landed at Alouchta, and to be joined by 40,000, who were to move along the south coast from Baidar.

By the sudden alteration and reduction of the forces in front of Sebastopol, must have been contemplated the abandonment of the active siege operations and of the trenches; disarming the vast batteries that had been established with enormous efforts; the withdrawal from the front of the battering train; and, no doubt, the occupation of that position round Kamiesch, which was subsequently entrenched at so much pains by the French. Such proceeding, which must have preceded the main operation, would have been attended with most damaging effects; it would have acted most discouragingly on the *morale* of the troops of the allies, and, in the same proportion, would have elated those of the enemy, who would have rapidly destroyed the siege works, and put his own defences in good order; whereby, if he chose to remain purely on the

defensive there, he might have withdrawn largely from his garrison, to reinforce his acting army; instead then of 35,000, at which the garrison is estimated by the Emperor, 15,000 would have been ample; the route also by Sapoune, the lower Tchernaya, and Inkermann, would be again open to him.

We may now consider the proposed active operation itself; and we must conscientiously, but with deference, avow that it appears to us to be of the most hazardous character throughout. 25,000 men were to be landed in the immediate rear of the enemy, and to establish themselves under all the inconvenience and deprivations of a disembarkation in an enemy's country, with no base of operations or retreat but the open sea. The first 3,000 men were to be detached to seize the mountain pass of Ayen, at some 10 or 12 miles' distance, on the road to the interior, which, being entrenched, was to cover the disembarkation of the remainder, and their junction with a corps of 40,000 men from Baidar.

A reflection here passes in our mind, which is, the reliance attached to the effect of this occupation of the pass, as if it must be impregnable, and necessarily secure every thing in its rear. We have, on the contrary, no faith in the common understanding of a *mountain pass;* that is, of an opening that can be secured by a small body of men against an army. We are convinced that, in

ranges of mountains not exceeding from 2,000 to 5,000 feet in height above the sea, in climates such as that of the south of Europe, and in summer, there is no such thing as a pass, which, however strong and narrow, could not be readily turned and thus forced, if attacked by very superior forces.

The enemy could not have wanted indications, both by land and sea, to lead him to be prepared for some attempt of the kind, and, without knowing the particulars, to induce him to collect reserve forces that would have been available against this enterprise.

On intimation being given that the pass was thus occupied, no time was to be lost in landing the remainder of the 25,000 men, and in moving forward the 40,000 collected at Baidar for the purpose; this last corps would have a march of 40 miles along the coast road, and under a very bold, precipitous parallel line of rocky mountains, the summit of which was in the power and within easy reach of the enemy: surely that must be deemed a hazardous manœuvre. The combined force was then to move forward to Simpheropol, about 35 miles from Alouchta, through the said pass of Ayen, leaving that lengthened line of communication with its flank exposed; in fact, this whole corps would be making the march of a semicircle round the central concentrated army of the enemy, by a double movement that

might be considered a wide one as regards the forces of the allies — with whom it would have lost all direct communication,—but each part within easy reach of the enemy, who could bear upon it at any time with accumulated forces. Ultimately, for the sake of finding itself in an inland insulated situation, precisely in rear of the enemy's army, this corps would have lost (for it could hardly maintain) its communication with the sea; and probably, by the time it arrived at Simpheropol, would be considerably reduced in number; while the enemy would be reinforced by 20,000 men from the garrison of Sebastopol, and 10,000 from the force previously watching Eupatoria, for which 5,000 would be quite sufficient, considering that, according to this project, a great portion of the allies would be withdrawn from that place, and even the 5,000 would be well circumstanced to act on the rear of this corps thus advanced. By all these means the enemy could concentrate probably 70,000 or 80,000 men to act against this movement, and under the most favorable circumstances. If it is objected that, by such an effort, he would leave the front on the Tchernaya very weak and open to attack, it may be answered, that it is a well-known advantage of a central position against dispersed and unconnected bodies of assailants closing around it, that dispositions may be made to retard the advances of those which it is wished to keep in check, while a great effort is made against the one

which it is desirable to crush ; and that this may be done without compromising, to any serious extent, the bodies engaged in doing so ; the object being, not any determined resistance, but only to create delays. It is certainly contrary to every good sound principle to make movements that entail great risk, on the faith of the enemy not being aware of them in time to oppose them, unless they are very rapidly executed, and such as can be effected with concentrated bodies, acting on radii towards a circumference. In the Emperor's project, the converse is proposed—the Russians are given the central position, and the allies are to work round the circumference.

Again, then, we would ask, why this project, coming from such high authority, was not carried out, or, as far as we can learn, ever canvassed? Canrobert had resigned the command to Pelissier, and Lord Raglan had died ; the supposed difference between the allied generals could hardly be pleaded then as a cause. There can be little doubt but that either the reasons above mentioned, or difficulties that might be sensibly felt on the spot, though not perceived at a distance, prevented the generals of either country from seriously taking it into consideration, even after the capture of Sebastopol, when the time was really come for external operations ; for then the siege was over, the enemy was driven to the north side of the harbour, which could no longer

be considered as a garrison, but rather as the right of their field position in the country; while the opposite shore became the left of that of the allies, who had, by this change of circumstances, a great increase of forces available for the field. Why no such external operations were undertaken, at that period, it is not the object of this article to discuss; we would only call attention to the little desire shown by the generals to attempt this particular project.

We would not presume to object to such a proposition as that of the Emperor being thrown out for consideration, or as a suggested principle of action, by a mind so energetic; but we must demur to its being now adopted to the letter, as a perfect lesson in the art of war.

NOTES ON THE FIRST VOLUME OF "L'EXPÉDITION DE CRIMÉE," PAR LE BARON DE BAZANCOURT, 1856.[1]

In this book will be found a complete exculpation of the prevalent idea in France—that it was an English war into which they were dragged. On the contrary, it seems to have been eminently of French initiation, and the complaint against England is, that our diplomatists and government would so pertinaciously shut their eyes to the danger; a more liberal construction of their proceedings would give them credit, while seeing

[1] These notes were written to supply materials for a critique upon M. de Bazancourt's book, which appeared in *Blackwood's Magazine*.—EDITOR.

through the designs of Russia, for a desire to ward off the blow by reasoning and moderation.

Le Baron de Bazancourt was sent out by the French government as a chronicler of the military events, for he is not a military man. This *Expédition de Crimée* is the first volume (the only one yet published) of his historical works. He had previously published his *Cinq Mois au Camp devant Sebastopol*, being a series of familiar letters of a similar character to the renowned productions by "Our Own Correspondents," but in a very different spirit, for with Monsieur de Bazancourt everything regarding the proceedings of the French is *couleur de rose* without exception.

L'Expédition de Crimée must be looked upon as the history of the French (not of the combined) army; giving only a slight glance at the part taken by the British, and that in no friendly spirit. The author enlarges in diffuse terms and high panegyric on every person, proceeding, and institution of the French, to which we have no objection; but we strongly deprecate his many uncalled-for and illiberal insinuations against the British.

M. de Bazancourt states that the bombardment of Odessa was undertaken by the allies as a punishment on the enemy for a wanton act of the Russians in firing at a boat returning from the shore with a flag of truce.

If such was the sole motive, and no collateral advantage to be gained by it, without disputing

the *right* of belligerents to adopt such severe measures, we cannot but express our opinion that it is not consistent with principles of humanity and civilization, to cause so much bloodshed and suffering on such slight grounds. It does not appear that any casualty occurred in the boat or ship, and as far as our dignity was concerned, it was sufficiently protected by the formal disavowal of the Russian commander, as having been done without sufficient reasons acknowledged by the law of nations. It is true our officers, and, no doubt, correctly, gave a different version to the facts; still the excuse might have been accepted under protest as to the facts, or some more moderate lesson might have been given for the imputed breach of civilized warfare.

The first reconnoissance along the coast with reference to the future expedition to the Crimea, recommended the mouth of the Katcha for the landing, which was approved of by the Marshal, apparently to the last, but after a subsequent reconnoissance by Lord Raglan in person, with other officers, his lordship judged otherwise (p. 167). "Cet avis est combattu, surtout par Lord Raglan et les généraux anglais. Lord Raglan insista avec une persistance infinie, pour que les troupes débarquassent à Old Fort et non à la Katcha; rien ne peut l'ébranler dans cette conviction, ni modifier son avis."

The Marshal yielded!

It becomes an interesting military question,

then, which was right: in our view, decidedly, Lord Raglan.

The Marshal, though so able a man, evidently thought too lightly of the difficulties of landing in face of an enemy—an operation which reason and every experience show to be one of a most difficult and hazardous nature. He is quoted as writing (p. 115), "En nous supposant débarqués *et l'on débarque presque toujours*," &c.

Let the reader consider the state of a body of troops rowing on shore in boats at the slow rate which they must move, probably not more than two miles an hour, with the precautions necessary for preserving order, and the necessary concentration; exposed to the fire of artillery from its most distant range, the helpless condition of the soldiers, and the serious effect of every shot that strikes a boat; the men packed close together, and exposed for the last 600 yards to a fire of musketry which they are unable to return, and then charged immediately after jumping out of the boats before their ranks are formed, and what more desperate undertaking can be imagined. Great consequence, however, is attached to the covering fire on the beach, from the armed steamers and gunboats; but such a fire can only be thoroughly effective over a low, unbroken, even shore, the very reverse of the features of the country at the point selected for disembarkation. At the Katcha, nature itself afforded some powerful defensive features; the

valley, which was flat and low, was about 1,000 yards wide, bounded by a range of very steep heights of at least 50 to 70 feet high, close to the shore, and which continued in a line of impracticable cliffs parallel to the sea, and very close to it; for more than half the extent of the opening of the valley, the sandy beach descended in rear to a great marshy pool covered with water, which, consequently, would have formed a fearful and unexpected barrier to the advance of the landing parties.

The whole might be compared to a natural front of fortification, to which a few hours' labor would have given a character of great strength, even in opposition to an army advancing from firm land, and might be considered utterly unassailable from the sea. Batteries to any extent might have been placed on the heights, in *flanking* positions, so as to sweep the shore, and approach to it, while they themselves would be covered from the fire of the shipping; and the slightest trenches across the valley would afford additional cover, to what previously existed, from the same fire.

The Katcha, besides, was so very near to the main hold and base of action of the enemy at Sebastopol, that to have effected a landing in force by surprise was quite out of the question; and, in fact, it was found, at the reconnoissances immediately preceding the landing, that the Katcha as well as the Alma, were "gardées par des camps nouvellement établis, et par de l'artillerie" (p. 166).

Even if the original design had not been overruled by Lord Raglan's advice, it would most probably have been abandoned on a closer view of the manifest disadvantages with which it would have been attended.

The terrible expedition to the Dobrutscha by a French corps, by which, in a few days, several thousands of men lost their lives, without scarcely seeing the enemy, is detailed as regards the names of places to which they moved, and the fearful losses that took place, which are attributed entirely to a sudden outbreak of cholera; to be sure, it is added, that "comme tous les évènements désastreux, celui-là a soulevé contre les chefs de terribles accusations. La fatigue des troupes disait-on, les marches forcées dans cette contrée malsaine, par des chaleurs accablantes, avaient été la cause du mal qui avait ravagé leurs rangs. Il falloit prévoir, deviner, pressentir. Hélas! les forces et les prévisions de l'homme sont bien impuissantes contre cet implacable fléau dont Dieu seul dispose."

If the British generals had only had such kind critics, the merits of our army would have stood higher than it does at present among its countrymen.

M. de Bazancourt thinks it by no means necessary to make any allowances for errors which he imputes to the British; on the contrary, for some reason, hardly in accordance with the kindly

feeling that should be encouraged between the allies, and which is so handsomely maintained by his Emperor, he loses no opportunity of decrying their proceedings in a most illiberal manner. We give him no thanks for the candour, for which he will probably take credit to himself, of complimenting the *bravery* of our army. He could not refuse it, as it was the general admiration of the French army.

The French officers and men associated with ours with all friendliness and warmth of mutual respect. . It is to be hoped that few under these friendly aspects disguised the illiberal sentiments uttered by Bazancourt.

An army composed of a combined force of different nations, is an enormous evil; however able and conciliating the generals may be, the consequence *must* be hesitations, delays, and the want of that uniformity of action, and promptness of decision, that is called for every day in a campaign. There must also arise sentiments of dissatisfaction on both sides, as the proceedings of the one may not be, even in details, in exact consonance with the ideas of the other—all which requires patience, moderation, and a determination not to be open-mouthed in imputing errors to one another.

Lord Raglan was a sample of perfection in these feelings: he was gentleness itself. Marshal

St. Arnaud, full of animation, was, notwithstanding, as far as we can see by his published letters, full of consideration for his ally; if in two or three passages he shows some impatience at delays in the movement of the British, he does it like a gentleman; for this, as well as for his many other high qualities, we feel bound to respect Marshal St. Arnaud as a great man.

M. de Bazancourt has no such generosity; every little difference or proceeding that can be used as subjects of contumely, is turned to account against us. We must say of the English writers, that amidst the virulence of the most abusive spirits against our own people, whom they held to be legitimate game, we cannot bring to mind a single occasion of such detraction being made use of against the French; nor must this gentleman lay the flattering unction to his soul, that his countrymen were so near perfection that they afforded no subject for censure.

M. de Bazancourt makes the most of the delays attributed to the English. In reading him, you might suppose that the British army, instead of being of service, was an absolute clog—an incumbrance—tacked to the French. The fact is, that a British army is certainly slower in its proceedings and in its movements than the French. There may be reason in it, or there may not, and therefore it does not follow, of course, that it is a

legitimate subject for complaint; but the effect was as of two horses in a carriage, whose paces are not alike, though both may be excellent.

We will not shrink from avowing that as regards slowness in their *proceedings*, the British system and institutions are capable of much improvement. They have not the readiness of managing their supplies, baggage, sick and wounded, which it is to be hoped they will attain now that the country seems prepared to incur the expense of the maintenance of proper equipments.

But with respect to the deliberate movements in the field, which did not keep pace with the vivacity of those of the French, we are by no means satisfied that we ought to attempt much amendment. Speaking of the attack of an enemy, the Marshal states, somewhat graphically, "les français courent et les anglais marchent;" and we are not inclined to wish to see this species of *sang froid* altered, nor to believe that it would be of advantage. It might be desirable to approach nearer to the French in the comparative rapidity of a daily march, or change of position; but in action, the more deliberate movement is the best. As to the reproach of the enormous quantity of baggage that impeded us, it is singularly unfortunate, as it is notorious the evils we sustained from having landed without any baggage.

We come now to the battle of the Alma, the account of which is any thing but correct.

After commenting bitterly on the delay of the British in not being ready at the time appointed, the French being out by half-past six, and the English, as he insinuates, not till half-past ten, M. de Bazancourt adds, "L' armée russe, au lieu d'être surprise, comme elle eut dû l'être, eut tout le temps de prendre ses dispositions."

This is sheer nonsense; for, supposing the fact of the delay to have been as stated, which we deny, the advance of the allied armies was over a great even plain, without obstruction of any kind that could interrupt the view of every one of their arrangements and movements from the Russians, who crowned the commanding heights overlooking it; therefore, whether the approach was commenced at half-past six or at half-past ten, the effect as regards any surprise must have been precisely the same thing; nor had it taken place even a few hours earlier than it did, could it have had the slightest effect on the results of the battle.

Then follows a minutely detailed account of the movements and proceedings of every part of the *French* army, occupying upwards of twenty pages, to which there can be no possible objection, since M. de Bazancourt, as before stated, is to be considered as the historian of the campaign of the French, not of the allied armies; but when he adds that, "les anglais, arrêtés dans leur marche par une formidable artillerie, décimés par un feu meurtrier,

et menacés par des masses énormes, éprouvent de sérieuses difficultés à enlever les positions qui leur sont assignées,"—that they received "ce choc formidable avec solidité, mais sans pouvoir avancer d'un pas," until some French artillery came up to their aid; and the Marshal exclaimed, "Let us rush to the assistance of the English,"—it is a complete misrepresentation, and reads like an unfair attempt to raise the character of the French, which was not necessary, nor as far as this proceeding was concerned, deserved, at the expense of the English.

The British army never met with a check throughout the day, except the partial occurrences in every battle to a regiment or brigade, which was speedily relieved by supports from the contiguous corps; nor was there any direct cooperation by the French, against the enemy's forces opposed to the British, till the Russians were completely shaken and retiring in disorder, when the battery alluded to may have fired some shots at them. The way in which the Russian position was covered by killed and wounded literally upon one another, or side by side, within arms' reach, British and Russians mixed, testified to the closeness of the contest, and how little was due to extraneous efforts.

The enemy's position was very powerful against a front attack: they occupied, in masses, the bold heights overlooking the river Alma, the village of Bourliouk, and the bridge and fords on the main

road leading to Sebastopol ; the same ridge, which is very steep, continues down to the sea about two miles distant. The right bank of the Alma, over which the allies advanced, was low, flat, and open, and thoroughly seen from the heights for a great distance. The British army, taking the left, advanced upon the main feature ; and the French, on the right, gained the heights between that and the sea to turn the position.

The Russians (in error as we think) did not seriously oppose the French gaining the summit, but moved out their reserves to attack them when on the heights ; and in that manner the battle was fought by the French.

This flank movement of course preceded the front attack, and, under ordinary circumstances, with a single instead of a combined army, the front attack would not have taken place until the Russians on the position before it, had been disconcerted and obliged to detach troops to the left, or alter its ground, in consequence of the success of the flank movement, when those in front, always closely threatening, would have attacked them vigorously. At the Alma, it would not have been consistent with the good feeling and ardor of the British to defer their attack so long, and it was accordingly made while the enemy retained his original ground, his batteries of artillery at their posts, and his masses unmoved, and in their full numbers and power. Thus, though in close co-operation, it was

essentially two distinct fights. This view is confirmed by the following confession: speaking of the Russian general—"Prévoyant que l'offensive du Général Bosquet n'était qu'une attaque secondaire, et que l'effort principal devait se faire par le centre et par la gauche de l'armée alliée ou se trouvait toute l'armée anglaise, le Général Menschikoff, confiant d'ailleurs dans les escarpements qui le protégeaient, affaiblit son aile gauche, pour renforcer son centre et sa droite."

M. de Bazancourt joins in the senseless criticism of the English making a front attack on such a formidable position, instead of turning it by its right flank; which, viewing the acknowledged gallantry of the attack as it took place, he calls an "*héroïque erreur;*" but such flank attack must have been by a wide movement, which would have taken considerable time, and would have been utterly contrary to every principle of war, founded on thorough experience, namely, to attempt to turn an enemy's army of nearly equal force on the two flanks, while he would be concentrated between them: a more dangerous and unjustifiable manœuvre could not be contemplated.

On the whole, this volume of M. de Bazancourt, instead of offering, as it ought and might have done, a valuable epitome of the military events of the war, and a work of useful instruction in military knowledge, presents nothing but a flimsy panegyric of French prowess, laid on so

thick and so universally, as we should expect must have an unpleasant effect, even on the very parties themselves who are eulogized with so daubing a hand.

Had the French emperor been aware of the character and tenor of this work, we feel very confident that he never would have given it the sanction of his apparent patronage.

AN ANSWER TO SOME RUSSIAN CRITICISMS ON THE PROCEEDINGS OF THE ALLIES IN THE CRIMEA.

The conversation which our consul reports that he had with * * * * relative to the late war in the Crimea, is not without interest, but must be taken with caution.

It is not surprising that * * * * should be so communicative, and *apparently* "without reserve," when his remarks were precisely what he would wish to have disseminated, their whole tenor being to laud the proceedings of the Russians, and to decry those of the allies.

He has great advantages in his arguments, inasmuch as, while almost every particular of the forces and of the circumstances of the allies is open to him, we are quite in the dark as to those of the Russians, having no guide but their own statements, to which, of course, it is impossible to attach implicit faith.

* * * * describes very truly the advantages the enemy possessed by the familiarity of the

Russians with the language of the allies, while the Russian was almost a closed book to us, and the readiness with which information could be obtained by an artful course of inquiry from French and British deserters; and to this he might have added, the state of ignorance in which the Russian troops must be on system studiously kept with regard to the condition of their own army, which rendered it very rare that the slightest useful information could be obtained from their deserters.

At the same time, I fully believe, and constantly urged, at the time, that we always greatly over-estimated the force of the Russians in the Crimea; and the firmness they displayed, the bold front shown on every side, considering the probable strength of their army, are most creditable to them and to their general.

There was, in my mind, clearly, on some occasions, a want of enterprise in the proceedings of the allies; I do not, in this remark, advert to the senseless outcry against them, for not having assaulted Sebastopol as soon as they came before it, by which desperate attempt they would have given the enemy every advantage, and where a check would have been ruin—in short, where they would have taken him in his greatest strength; but I allude to the many opportunities of taking advantage of his weakness—such as at Balaklava; on the heights of Inkermann during the winter of 1854; and after

the capture of the town; but such a want of decisive energy is inseparable from a combination of forces of different countries in one army, unless where one has clearly the acknowledged predominance in force and in command, and the others are entirely dependent.

As regards the *specific* remarks of * * * * they will admit of an interpretation of a different tendency to that which he would enforce.

He states, to the credit of the Russian general and apparently as a slur on the allies, that "on the 18th June the former was obliged to leave his left on the Mackenzie heights unguarded, &c., &c., to concentrate his divisions for the defence of the town," a very natural and proper measure, because it was evident that at the town the great contest was to take place; and because he no doubt considered, and probably justly, that the allies were not in sufficient strength to detach any force adequate to make an effective impression in both directions, hampered as they were with all the works, batteries, and business of the siege, and that in the event (as occurred) of failure in the assaults on the place, they could not have retained their ground on the Mackenzie heights.

With reference to the historical value of his observations, he hardly does justice to Omar Pacha and the Turks. It may be true that the Turkish troops were little to be dreaded in the open field, but by the defensive and prudent policy adopted

by them at Silistria on the Danube, and at Kars, they were at times a formidable and very damaging enemy, and did not deserve the insulting terms of *"canaille"* and *"ce bon M. Omar Pacha."*

It is stated that the force in front of Kertsch and under General Wrangel never exceeded 3,000 men, and this is treated as a kind of triumph, but on no good grounds.

The object of the occupation of Kertsch was not with a view to any immediate advance into the country, although it was a threatening basis for such a proceeding, if subsequently thought advisable; but, by retaining it defensively, to obtain command of the entrance into the sea of Azoff. General Vivian's force was chiefly composed of a new levy (the Turkish contingent) in progress of organization, and consequently unfit at that time, while it was also unprovided, for taking the field; every desirable object therefore was gained, and a most important one it was, by the maintenance of their position. That they should have prepared themselves to resist 30,000 men, which is sneered at, is to their credit: there was no sacrifice made by their doing so, and it is a maxim in war, when time and means are available, always to make defensive measures doubly sure; and even supposing General Wrangel's force to have been *bonâ fide* only 3,000 men, who could say what reinforcements might not have joined

him at any time for the temporary purpose of a specific attack upon Kertsch? And in the same way, as regards the weakness of places on the sea of Azoff, of which the 300 men of Arabat is given as a specimen; no troops were sent up that sea, nor was there any reason for the allies to attempt to establish themselves on its shores: the operation there was purely naval, and the flotilla employed did everything required of it, in interrupting communications and means of supply, by which it must have caused much inconvenience to the enemy.

* * * * chimes in readily with what he is aware is a popular impression against the allies, namely, that they should have stormed Sebastopol at once; and then, somewhat unaccountably, just after it is stated that "*he would not admit, for a moment, that Sebastopol should have been abandoned*," followed by strong reasons.

Now, the Russian army, after the battle of the Alma, retired rapidly on Sebastopol, where they appear to have remained entire till the 25th September, that is for three or four days, during which time, had the allies presented themselves before the place, they would have found the whole force collected there to oppose the assault, which he says they ought to have made the day after the battle of the Alma.

Considering that there could not, at that time, have been any very great disparity in numerical forces, for the Russians had retired upon resources, and that the positions round Sebastopol were, by nature, exceedingly strong, the flanks of the defenders perfectly secure, while those of the allies would be exposed in the greatest degree, it is an extraordinary falling off from his boldness on other occasions to say, that "*there was nothing to stop the allies from marching into the town.*"

But the circumstances of the allies were such, that they could not have accelerated their advance upon Sebastopol by much.

On the 24th (the fourth day after the Alma) they crossed the Belbec, and were, consequently, in front of the north side. The first question then is, whether they ought at that time to have attacked the north side by a *coup de main.*

A look at the plan of the place will show how strong that front was: in extent about 2,400 yards, across a ridge of bold rocky heights, intersected by steep ravines, with a fort conspicuously situated on a commanding feature of the ground; the approach to the whole front subject to enfilade by heavy guns and the right of the position open in flank, and even in rear, not only to the fire of several men-of-war, including steamers in the harbour, but to the heights on the side of the town, as far as the valley of the Tchernaya; and defended by an *army* which, although recently defeated,

was still very powerful, as it showed itself to be very shortly after.

It could hardly be said that such a position was assailable by an army but little superior to the defenders, with nothing but its field pieces in aid, and which had no retreat.

To be sure it is said that "*these forts are not even now tenable, although they have been working at them for a year, and they never can be made so as they are commanded,*" all which is specious, but quite inapplicable to the question of immediate assault.

In the first place the expression of not being "*tenable*" is indefinite; a work, which left to itself, may be deemed untenable, may be of great importance and strength, when forming part of a defensive position, as in this case. The particular fort alluded to, although of a very inferior character as a permanent work, was revetted and flanked, and, at all times, superior to the Malakhoff, Redan, or Mamelon, at their best, and they were found tenable enough, till after the most enormous siege operations.

That "*they are not now tenable, although they have been working at them for a year, and they never can be made so as they are commanded,*" is a confession that they have been continuing to work for a year on an object that is unattainable, and not very complimentary to the Russian engineers, nor to their commanding generals; but in

this, in fact, introduced for the sake of criticising the allies, he does not do justice to his own side.

That they are "*commanded*," must have peculiar reference to the sea batteries and forts, for, by using the plural number, they are all included; whereas, as regards the centre fort, which would have the principal influence on an assault, it clearly was not commanded in a sense bearing upon such an attack, even if it be partially so (which may, however, be doubted) against formal siege operations, and a cannonading from heavy guns.[1]

On the 25th, the allies commenced what has been called "the flank march," and just touched upon the baggage of a corps of the enemy, which apparently had left Sebastopol that morning, and was on its way to the interior, and which appeared on a slight reconnoissance, to consist of from 15,000 to 18,000 men, from which it might be inferred that from 20,000 to 25,000 had been left in the place, including seamen from the fleet, who are known to be, in the Russian service, well drilled as soldiers, and able artillerymen; not only might this be inferred from appearances, but would seem to be a natural arrangement, as the best chance of saving so important a place—an object, the magnitude of which is confirmed by the expressions of * * * *.

[1] Major Graham, of the Royal Engineers, who inspected these works after the peace, confirms the views of Sir John Burgoyne upon these points. The centre fort occupied a culminating point of the ridge, and was not commanded in any way.—EDITOR.

But he says, "*after reaching Balaklava, the allies ought to have marched straight into the town, where there was nothing to stop them.*"

Now we will see of what this *nothing* consisted.

1. A series of very strong positions whose flanks were perfectly secure round a common centre, (the town,) from which each was easily accessible, and the mutual communication not difficult; whereas, the attacks were to be from a much more extended and diverging circumference, which was broken by deep, and in part, almost impracticable ravines, some of the most important of which were raked by men-of-war in the harbour.

2. These positions were greatly strengthened in parts by old line walls, towers and strong buildings, affording, even in their dilapidated state, formidable obstacles against a *coup de main*, and to them the enemy were adding earthern redoubts on the most influential points, and on which, even then, some heavy guns were mounted.

3. A garrison, or rather a *corps d'armée*, as above described, to defend these positions.

4. The attack to be made by an army of no very great superiority of strength to the aggregate amount of that of the Russians, to be supported only by field artillery of a peculiarly light nature, and without any retreat in case of a reverse.

That such a garrison was in the place (the other advantages for defence being indisputable)

cannot be doubted from the circumstances above mentioned, and from the firmness and activity shown by the garrison on our appearance.

The immense importance of preventing the capture of Sebastopol was such, and the means so manifestly available, that it would totally belie the character of the Russians for the firmness which they uniformly displayed, and the principles of which are so strongly enforced by * * * * himself, not to feel assured that they acted up to it on that occasion, and with far greater prospects of success, than during many other emergencies in which they were placed. This display of contempt for the want of energy on the part of the allies in not at once entering the town, "*which there was nothing to prevent*," must be therefore clearly imputed to the desire of * * * * to depreciate the conduct of the allies, not perceiving that in doing so, he is greatly impeaching that of his own side.

"*After the fall of the south side*," * * * * says, "*an advance in force from Eupatoria, or the Katcha, would have put the Russian general in great difficulty*." Any such advance in force, however, would have been by a widely dispersed system and unconnected attacks, and would have given the enemy all the known advantages of a central position, from which he might have concentrated his forces to act against any one corps as he pleased, with the additional advantage of very strong positions

of defence against that part which he might have to keep in check, while he made his great effort on any other.

Such wide movements would be most dangerous, and precisely reverse the admirable manœuvres that a study of the campaigns of Frederick the Great and Napoleon Buonaparte, in Italy, show to have been the cause of their successes. Nor would it be considered a case for taking great liberties, when the very preceding paragraph mentions coolly having received, about the same period, a reinforcement *of* 30,000 *grenadiers*.

Independent, however, of those considerations, there were other difficulties in the way of these particular operations.

An advance from Eupatoria into the interior would have been over a country without resources, and, it is believed, without even water for any considerable body of men and animals; and if by an advance from the Katcha is meant a new landing there, in the very face of the enemy, such an attempt would have been too wild for a moment's consideration, as it would have been defeated with much loss by any small corps detached for the purpose.

The occupation of Eupatoria by Omar Pacha and his Turks, and that of Kertsch by General Vivian's corps, bodies well adapted to the objects of retaining those threatening and somewhat harassing positions, while they were not the best for

manœuvring in the field, were judicious measures, and were all that could reasonably be applied at the time.

But he adds, if the advances, which he assumes might have been made from Eupatoria or the Katcha, would have been so damaging to the enemy after the fall of Sebastopol, "*how much more so would they have been if they had been made while they were compelled to hold the town.*"

But he seems to forget that while the enemy were compelled to hold the town, the allies were compelled to hold their trenches and batteries, and to present a powerful front towards the town, which occasioned a more urgent need for keeping their forces together.

On the whole, it has always appeared to me, that the true course for the allies was, as early as possible after the fall of the town, to have concentrated their forces along the Tchernaya, with their right on the sea in front of Balaklava, and from thence to have made advances upon the enemy. The army was large, and from a central position could have made their attacks where they found most advantageous, all their resources at hand, and with a power of affording to any part ready mutual support.

It is said that the enemy's position was very strong; it was, however, at the same time very extensive, and they could not have had the force to guard it all effectively. Indeed it is so admitted,

and credit is taken for having on one occasion checked the advance of the French by a display of a force which it seems clear could not have been available in many parts at the same time.

OBSERVATIONS ON THE REPORT BY SIR JOHN MCNEILL AND COLONEL TULLOCH.

There was an extraordinary combination of disadvantages under which the army in the Crimea labored, to which due importance has never been given, in accounting for the hardships which the troops suffered.

Ever since the world began, active operations in the field during winter have universally led to great suffering and losses; and of all active operations a siege is among the worst.

In the Crimea, we had a hard winter, operations throughout the whole of it, an arduous siege in hand one side, and an enemy's army in the field to guard against on the other, with a large amount of other very peculiar disadvantages: a soil deep and peculiarly unfavorable for traversing; no made roads; a very great scarcity of fuel, and that little could be only obtained by great labor and in very small quantities; no towns or villages from whence any resources could be procured; land transport so small that it may be accounted almost as nothing; a force inadequate to provide properly for opposing the enemy, much less for performing any extra duties of fatigue; and a

very imperfect organization and means in various accessory departments for the wants of even ordinary service, much more so for such extraordinary circumstances. This imperfect organization is usually ascribed to the result of a 40 years' peace, but it may be doubted whether, even in the height of the last European war, the accessory departments of the English army had ever been organized on a footing to enter upon such a campaign as this.

With regard to land transport, the difficulties in the way of collecting and maintaining any amount that would have been of sensible utility were enormous, and, indeed, may be understood by the slow progress and still imperfect state of the present provision, after a twelvemonth's exertions, with ample funds and every possible means at work for it; and *nine-tenths of the evils of the army were attributable to want of transport.*

To what other reason than the impossibility of getting the articles to camp, could be attributed the frequent recurrence of the fact, that articles of primary importance that were in store at Balaklava, were not issued to the troops, or what appears still more important evidence, quartermasters, soldiers, &c., refusing to take forage, blankets, and other things, of which there was the greatest want, or abandoning them after they were served out to them.

When we took up our ground in front of Sebastopol, the French and British forces were nearly

equal, and the attacks and front towards the enemy were about equally divided; subsequently, our strength was gradually reduced, until, at one time, it did not exceed one-half of what it was originally; but we continued to maintain the same amount of charge: the French force, on the contrary, was gradually augmented. Lord Raglan represented the case as strongly as he could, from time to time, to the French commander, who had his hands full; and so it remained, Lord Raglan manfully doing his best. To have abandoned the trenches would have led to the greatest disasters; and with his weak force, he determined to cease to provide working parties, and to trust the trenches to the guard of a body that could only possibly retain them by the greatest heroism, and a want of knowledge of their weakness on the part of the enemy.

It may, perhaps, be admitted, that leaving the knapsacks on board ship was not advisable under the possibility of great delays in recovering them, as unfortunately happened; but the fact that the measure was not ordered, but was permitted, and that it was adopted by every corps, will show that the general feeling was in its favor; the inconvenience it occasioned was great, but it ceased by the middle of November, which was before the greatest distress had commenced.

It is important, in order to place the conduct of the British officers in a more fair light, to show

that it was not the British alone who were subjected to such deprivations and losses: we know that the French suffered most severely, and probably, if the returns were known, as much in proportion as we did. In the very essential item of cover, they were decidedly worse off, for they had only the little *tente d'abri* all through the winter, instead of the bell tent. There is no reason, therefore, for considering the British army peculiarly as degraded and ruined by the results of that winter, nor can there be a doubt but that the Russians suffered much more than either of the allied armies.

The provision of huts was a great measure, devised at home with much energy, and with the best intentions; but it was on an erroneous principle. It is impossible to convey such enormous masses of timber over the country; a proportion of them for the immediate neighbourhood of the port of debarkation would always be of great service; but for an army collectively, who are not stationed within a mile or two of the landing place, the extra accommodation for bad seasons should be effected by every improvement that can be given to the tent.

The commissioners state that the military authorities did not give a sufficient number of non-commissioned officers and good men to attend the hospitals, on the argument that "*it may be doubted whether persons well qualified for situations in the*

hospital, would not contribute more to the relief of their effective comrades by promoting the recovery of the sick, than by taking their duty under arms, and leaving the sick with less efficient attendance."

Nothing can tend more to subvert the efficiency of the troops than to urge this as a fault. To take hospital orderlies and such services from the effectives of a regiment, is a most prejudicial and uneconomical arrangement, and should be as much as possible superseded by others. With the sick *present*, some such service may be necessary, but for distant or even detached hospitals it is to be deprecated; for want of such improved arrangement, calls were necessarily made on the troops in the Crimea; but it would be most illiberal to visit, as a subject of censure, the reluctance of generals, staff, and commanding officers thus to break up their corps on so refined an argument.

Much of the inconveniences and hardships suffered by the British may be imputed to the peculiar helplessness and inaptitude of the British soldiers for campaigning, a defect which can be remedied by some actual service in the field; for during the latter periods of the Peninsular campaigns, they were very greatly improved.

In cooking, hutting, and other contrivances for adding to their comfort by turning to account the variety of means that may happen to be at hand in the country, they are far inferior to the French; but the most serious evil in connection with the

efficiency of an army in the field, is their great failure in the care and preservation, in a campaign, of the animals with which they are charged, in which, it is believed, they are much worse than any other nation.

The best possible ration for a soldier in the field was a very proper subject of inquiry for the commissioners, and, probably, the conclusion to which they have come may be a very just one. But it might reasonably have been explained, to spare the same censure hereafter that has been cast on the authorities in the Crimea, that it will constantly occur in campaigning, as it did before Sebastopol, that insufficiency of transport, and, perhaps, want of resources in the country, (for we cannot always calculate upon close floating means,) may prevent a *possibility* of providing that supply, although it may be quite right to fix upon what is to be aimed at as much as possible.

If all the matters in the report that cannot possibly be made subjects of censure against authorities or others in the Crimea, were extracted or clearly distinguished, it would relieve public opinion from much of the impression of mismanagement.

A system for the baking of bread with an army may be most useful on many occasions ; but it has yet to be created.

When the question of obtaining transport animals is treated of, it is said there were means of procuring and conveying them to Balaklava, and

so of cattle for fresh meat, for forage, and a variety of other articles, each one considered distinctly; but it is very questionable whether *all* could be supplied.

This "clinging to system," as it is called, is reprobated; but, admitting the propriety of an occasional deviation to meet urgent circumstances, it would be most dangerous to argue, as seems to be the tendency of the common opinion, that every defect of system, or what may be supposed to be so by individuals, should be at any time altered at their discretion; even if they had the capacity or the power to do it at the instant of the emergency. It is said—"Oh! but great minds like that of the Duke of Wellington grasp and overcome such difficulties;" but it must be remembered that all the powerful efforts of the Duke, in reorganizing what was faulty, were the work of quiet times, after the evil had been experienced, and not in the midst of the period itself.

Complaints are made of boots and shoes. The *sizes* are such as have hitherto been found appropriate; and, certainly, no one had foreseen the advantage of larger classes for this particular service. With regard to quality, the complaints against some give an impression that the whole were faulty; whereas, in distress for boots during the winter, I got two pair of the soldiers' "*ammunition boots*," as they are called, wore them for many months, and found them to be of a very superior quality.

The sentiments on the *value* of the life of each soldier to the state, independent of the humanity of the matter, are perfectly just; and it would relieve the minds and responsibility of generals, commissaries, and medical officers, if they were formally adverted to in the instructions from the Treasury.

The substitution of good porter for spirits is a very good reflection in a closet, and to be inculcated in the very rare cases where it can be applied to an army; but it is a delusion to suppose that it can enter into the ordinary supplies of an army in a campaign.

There is an important admission, that the great want of many most essential articles was only experienced for about six weeks,—a great deal too long, it is admitted; but it was at an early period, and the exertions made caused the subsequent improvement.

The remarks on the inaptitude of the bell tent sent for hospital accommodation must be unnecessary, as no one would *willingly* so apply it, as this argument would seem to imply.

The proportion of deaths to admission into hospital may have been augmented by want of proper remedies, but not necessarily caused by it; much, no doubt, was owing to the weak condition of the man, when taken with sickness, or wounded, and much to country and climate.

Defects in general system are frequently com-

mented upon by the commissioners, and, perhaps, very properly; but added to all the rest of the matter of defects, this tends to increase the impression of censure on the parties with the army; while, in fairness, there should have been a distinction.

For the sake of clearness, of future improvement, and in fairness, to avoid unmerited imputations on the officers in the Crimea, these suggested improvements should all have been given under a distinct head of the report, or in an appendix, and not mixed up with the rest.

GENERAL MILITARY SUBJECTS.

ATTACK OF FORTRESSES.[1]

ARRANGEMENTS PREVIOUS TO A SIEGE.

Previous to undertaking the siege of any place, every possible information respecting it must be collected, by means of the people of the country, deserters, or spies, which may tend to facilitate the operations.

The objects most particularly to be ascertained will be—the state of the works; the number, calibre, and state of the ordnance mounted on them; whether the parapets, platforms, guns, carriages, &c., are in good order and repair; what magazines and barracks are bomb-proof; and what number of men the barracks are capable of containing; the number and condition of the garrison; whether the inhabitants (if it is a town) are well or ill affected; and the quantity and state of the ammunition, provisions, stores, &c., &c. In making these enquiries, the greatest care must be taken

[1] These notes on the attack of fortresses, up to page 275, are taken partly from notes written during the Peninsular war, and partly from notes on the same subject published in the *Aide Mémoire of the Military Sciences*.—Editor.

that the enemy, by hearing of them, do not come to a knowledge of your intentions.

It is a general maxim in all military operations, to attack the enemy where he is the most weak: but as it may be of the greatest consequence to have possession of a fortress where he is stronger than at other points; in order that he may be attacked with all possible advantage, every manœuvre and feint should be made use of previous to a siege to throw him off his guard in that quarter, and to induce him, if possible, to drain the place it is wished to attack, of stores and men, &c.

Should it not be in your power to make the enemy weaken the garrison, at any rate the utmost secrecy should be preserved, which, by keeping him equally in alarm for all parts, may prevent his taking any particular precautions in the quarter where it is so much the interest of the attacking army that he should be unprepared.

INVESTMENT OF FORTRESSES.

As the march of an army with its train of artillery, &c. is slow, were it to proceed in a body to the investment, its object would soon be known, and the enemy have time to prepare themselves for a vigorous resistance by reinforcing the place. For this reason, when the army is at the distance of two or three days' march, a strong body of cavalry is detached, who proceed with the utmost despatch to the investment.

This operation is so arranged that the troops may arrive at sunset just out of cannon shot of the place, which is immediately surrounded in such a manner, that nothing can get in or out. Small parties are then sent out to the very gates to intercept men, cattle, &c., and to carry off everything which may be of service to the garrison.

During the day, these troops keep out of cannon shot, but at night they advance as near as possible, and gradually retire as the dawn approaches.

As this duty lasts only a few days, the troops employed upon it must be very much on the alert; the whole of the horses must remain saddled, and but half of the detachment be allowed to dismount. The men should repose only in the day-time, and then only half of the number at a time.

The commanding officers of artillery and engineers, and the quartermaster-general proceed with the investing force to commence their arrangement for the attacks and encampment of the army.

The number of the troops for the investment, and the description of them, whether cavalry or infantry, must depend on the nature of the country and the means the enemy may have of defeating the intention.

To invest Nieuport and Ostend, it was only necessary to be masters of some passages along dikes, as the environs were inundated; and for this purpose some companies of grenadiers and a few dragoons were found to be sufficient.

It is remarked of some places, that after the besieging army has occupied all the posts of the environs, a superior army cannot attack it but with an evident disadvantage. Namur is a place of this description. Louis XIV. took it when William III. had a superior army; and the latter re-took it when the French had a superior army in the field.

It is of the greatest importance that the place should be perfectly invested, and remain so during the whole siege.

RECONNOISSANCE OF FORTRESSES.

The first measure, on arriving before the place, will be a most minute reconnoissance all round it by the commanding engineer; in addition to which, a number of officers, each provided with a sketch previously prepared for the purpose, of the best plan that can be obtained, will have the ground divided among them, to examine and complete the plan to as much correctness as is possible. To effect this reconnoissance closely, all the enemy's posts must be driven into their works. It may perhaps be best done at the investment.

When the front of attack is fixed upon, that side of the works, and the ground in front of them, should be more minutely examined, and every particular marked on the plan.

A project of attack to the very last operations connected with it should be laid down as minutely as can be. Every difficulty or new obstacle which

the enemy may throw in the way should, if possible, be foreseen, and suggestions offered for counteracting them.

This plan should then be prosecuted with the greatest activity and vigor, and having been laid down after mature consideration, the alterations that may be required in conducting it will be trifling, and such as cannot produce any difference of opinion. If any considerable alteration takes place, such as in the direction of the batteries, &c., the plan is ill laid, or there is little firmness in the councils that guide the operation; and most probably the result will be disastrous.

Much inaccuracy will occur by trusting to the ordinary rough field sketching, by pacing and pickets, &c., &c.: it is therefore necessary that the particulars should be accurately defined by good surveying instruments, and by officers well experienced in such operations, and who will be *responsible* for the work.

However well this may be done, and however minute the observations may be that are made from a distance, on the guides afforded by particular objects and marks, they will not be sufficient to enable the engineers and sappers to lead, and place the covering and working parties in their proper positions on a dark night; and the consequence of trusting to them would be inevitable confusion, and many errors in the works.

In addition therefore to that knowledge, a most

perfect acquaintance with the locality itself must be obtained, by effectual investigation of every part by the engineers personally on the spot during preceding nights, and such marks even *fixed* as can be done without danger of their being discovered by the garrison.

For this object, as well as for many others that are very desirable, the garrison should be kept close to its walls, if possible within them, particularly by night, from the first investment.

There will be a struggle at first, and perhaps continuously, for the advantage of extending the outposts to the front by both parties, and if persevered in with energy, of which it is well worthy, will be resolved at length into that of absolute power, which will probably be, that a garrison of moderate strength may be kept very close to its works every night; and in the day, small parties and stragglers will be out from 300 to 600 yards from the place, if the environs for that and greater distances are well exposed to the fire from the fortress.

There is a system and peculiar order to be observed by working parties in opening ground under the guns of a garrison, that requires to be understood by every man in the army, more particularly as they are performed in the night, and in perfect silence. Hence it is most desirable that every soldier should by corps be exercised in the different operations that he will be called on to execute.

1. In laying themselves out to ordinary trench-work, with and without fascines or gabions.

2. The system of work in batteries.

3. The nature and extent of the different tasks that will be considered the complement of one tour of duty in trench and battery work for night or day.

It will not be necessary that the soldier should do much actual work in these exercises; in many of them, none; but that they should become thoroughly acquainted with the forms of proceeding by good practice, and with what they will have to execute, by specimens shown them.

They should also have such acquaintance with the amount of labor required for each defined task, by seeing a few sappers execute them or otherwise, as may satisfy them that they are by no means hard, but can be readily performed by a little exertion.

Another good result may be derived from these exercises, if conducted with due formality, in attaching more military effect to the duty than is usually now the case.

PRINCIPLES THAT MAY SERVE TO GUIDE THE DETERMINING OF THE FRONT FOR ATTACK.

As regards *natural causes:* the fronts of a fortress are usually deemed *unattackable* by siege operations, when situated on steep rock exceeding 40 or 50 feet in height. Also those surrounded by

water or marshes that cannot be drained off, or whose front is seen in flank and reverse by ground in inaccessible situations, having works on it which cannot be silenced.

The attacks of fronts are *very difficult*, when the approaches must be carried over rock or very stony ground, or among roots of trees, or in a very wet soil, particularly where the natural inclinations will not admit of a free drainage of the trenches. Also when descending towards works that are on commanding elevations; or approaching them on a lower level, not being in the same plane; or when the approaches must be carried across a narrow confined space presenting a smaller front than that of the place.

As regards the nature of the works: the difficulties to the progress of the besiegers may be greatly increased when the works are countermined; where the ground to be passed over may be inundated; where the front is in one very extended straight line, or nearly so; where the ditches are cut out of solid rock; where the flanks have casemated guns; the revetments *en décharge;* with ditches that by means of sluices can be inundated and dried at pleasure; or where there is a succession of lines of works, each requiring close breaching batteries; or where the ground and buildings immediately within the front are very favorable for being made into strong retrenchments: for, generally speaking, the nearer

the works of defence, whether permanent or temporary, are to the body of the place, the greater obstacles will they prove to the besiegers.

Circumstances favorable to the attack are of course the reverse of the above; also where the ground to be passed over presents much or occasional cover, either from its inclinations, or from artificial objects, as buildings, mounds, trees, enclosures, &c.

Ground rising gradually in one plane to the parapets of the works is favorable for the besieger.

It is advantageous to carry on attacks along one bank of a river, where you have entire possession of the other bank, on which batteries can be placed to take the front of attack in enfilade or reverse, and particularly if that other bank is high and commanding.

Sometimes, a front that is not absolutely the weakest may be selected for the attack, from some adventitious circumstances of advantage on other accounts, more than counterbalancing that consideration. As, for instance, there may be peculiar facility for bringing up all the necessary supplies of artillery and siege stores on that side, by some navigation or favorable roads; or the army may be more advantageously circumstanced by that selection, for covering the operation, and securing the communication with the depôts from whence the supplies are drawn.

NUMBER OF TROOPS FOR A SIEGE.

The attempt to lay down a scale for the number of troops required for a siege, in proportion to the size of the place or strength of its garrison, must be delusive. In one case double the number of the garrison may be sufficient, while in another six times its force may be required.

The calculation will depend upon many contingencies: among the principal are—

1. Whether the besieging army will have any exterior force to guard against.

2. Whether the inhabitants of the adjoining districts are friendly or hostile; and, if the latter, the extent of their energy, or power of annoyance.

3. Whether the garrison would be favorably circumstanced for making sorties, or the reverse.

4. The extent of labor and duties which would be required of the besieged, in proportion to the strength of the garrison.

5. The quantity of work and duties that would be required of the besieging force.

6. Facility or otherwise for procuring timber, brushwood, means of transport, and other accessories in the neighbourhood.

7. Abundance or deficiency of artillery and ammunition, as well as of engineers' or sappers' tools and stores, will influence, in a great degree, the number of troops of the line necessary.

8. Consideration of the means of the besieged in the same particulars.

Every species of service and duty must be brought into account; but the principal ingredient will be the number of men that must be daily actually *in* the trenches, for *guard* of the works or working parties, as well for artillery as for engineers, giving them the proper number of reliefs.

FORCE OF ENGINEERS.

Sappers and miners cannot be in too great numbers; if perfectly efficient and well trained, each sapper in a siege will be worth three men of the line, up to a certain considerable number. They should, if possible, do every species of trench-work, excepting what is of the most ordinary character; and by the facility and regularity with which they would perform it, a great deal of time would be saved, fewer men be required in the trenches, and much fewer casualties occur.

Each brigade of officers should have the assistance of six men, to lay out the works, and keep the working parties to a correct performance of their task.

Each head of a sap, allowing for regular reliefs, will require twenty-four.

For revetting batteries, six men per gun.

Of the parties making fascines and gabions, one-fourth should be sappers, particularly at first.

The following may partly be made up of artificers from the line:—

For preparing and afterwards laying platforms, four carpenters each.

For each gallery of a mine, requiring support by framework, four carpenters.

These two last suppose the plank and wood to be ready prepared, at least in the rough.

For cutting out sleepers and planks in the woods, two pair of sawyers, per pit, should produce one platform from each pit in two summer days, including cutting down and trimming the trees, &c.

For a moderate siege of a fortnight or three weeks, where twenty officers of engineers and twenty-five pieces of artillery are employed, the number of sappers should not be less than four hundred.

A front of fortification attacked, of the extent of Vauban's, would require at least double the number, besides miners in addition, where necessary.

OBJECTS AND PRINCIPLES OF ATTACKS.

To ascertain what works will be necessary for any siege, it may be well to revert to first principles.

The object to be obtained in the attack of a fortress is to make a breach or passage in its walls, capable of allowing it to be stormed with superior forces.

If the place has only a single line round it, and that exposed to view to the foot, or very

near it, a single battery, established at from 200 to 400 yards' distance, may be sufficient to effect the breach; and the troops then storm the place at once.

Unless there should be natural cover up to the site of the battery, a covered approach must be made to it for the troops. During the night, the guns may be taken by the most convenient roads or directions, independent of the approaches.

In proportion to the fire of artillery that the garrison can bring to bear upon the single battery, will be the difficulty of effecting the breach, or the breach may have a flanking fire to bear upon it (and a very small flank will have a powerful effect on the assailants): in either event, these means of resistance, if too powerful, must be previously silenced or greatly reduced. This must be effected by other batteries, and probably some additional works will be necessary nearer the place.

When the garrison is in sufficient number, and has facilities for making sorties, the batteries must have covered communications to connect them, and cover for troops to support them; and in proportion to the force and facilities possessed by the garrison must these precautions be increased.

If the wall of the fortress be not exposed to fire from a distance, the breaching battery must be established nearer; and when it has a revetted counterscarp, the approaches must be carried close to it, to enable a clear passage to be formed to the breach.

Certain outworks, under different circumstances, will demand similar works of attack; and through the whole proceeding, there must be covered approaches and assembling places, for the passage of the troops, and for the lodgment of sufficient number to protect the batteries from sorties.

From these data will be perceived the necessity for giving such a direction to the approaches, which are formed in zigzags, and to the parallels, as will secure them from enfilade; and these works will be greater or less, in proportion to these considerations, to the size of the fortress, and strength of its garrison.

[1] It is usual to lay down a system of attack in three parallels, the first at about 600 yards' distance, the second at 300, and the third on the glacis; but it should be borne in mind that this is only to give *an idea* of the mode of carrying out the general principle under ordinary circumstances, and not as a fixed rule; for the siege of a place garrisoned or supported by several thousands of men, in fact by a small army, with its environs exposed to its fire for a considerable distance, may require parallels and support from 800 to 1,200 yards off, and these would be much

[1] From this point to the end of the paper, the reader may remark how closely these notes apply to the circumstances of the late operations before Sebastopol. They were written seven or eight years previously, and published in the *Aide Mémoire of the Military Sciences*.—EDITOR.

more numerous and irregular than the three defined parallels above described, for it would be impossible in that case to establish yourself at once so near as within 600 yards, while in proportion as the force of the place is reduced, the operations may be diminished down to the minimum of the single breaching battery.

It may be mentioned here, that a large place strongly garrisoned, however inferior the fortifications, is far more difficult to take than a small one, however complete and perfect its works.

There are many reasons why this should be the case.

1. It is difficult to conceive a case where such a place could be completely invested, on account of the great extent of encampment out of gunshot, that would be necessary to enclose it; every part would be weak, and liable to be attacked by the concentrated force of such a garrison.

2. The space at the disposition of the garrison would be so large, that all the troops off immediate duty on the front of attack, would be quiet and undisturbed.

3. The different fronts would approach nearer to straight lines, and their works probably not subject to be enfiladed; or if an angular or salient point be selected for attack to give that advantage, that very salient would probably afford convenient position for strong and multiplied interior retrenchments.

4. Every sortie becomes a battle of armies;

and any error in resisting one may lead to a great disaster.

5. Abundant supplies of artillery and means can be drawn in succession, as required, from the many fronts not attacked.

6. Retrenchments may be formed in succession; for even trifling entrenchments will be very efficient when on a small front, backed by strong forces, and perfectly secured in flank, where the assailants advance from confined trenches, subjected to heavy vertical and other fire.

On the known advantages which even a few slight works, on a tolerably good position in the field, will give to an army of very inferior force, it may be conceived how strong must be one protected by any thing of the character of permanent fortification.

On referring to recorded accounts of sieges, it will be found, that against powerful garrisons, the besiegers have usually under-estimated the required works, and have experienced the necessity, as they proceeded, of obtaining more support, and at greater distances than at first intended. This error has very probably arisen from the impression left in the minds of engineers by the precise form and proportions given in Vauban's diagrams, and taught in schools of fortification. An unnecessary amount of extra work will, from the same cause, (of adhering to fixed rules, instead of attending to principles,) have been frequently

applied in the siege of small places; but the evil in that case will not be so apparent.

ENCAMPING BEFORE A FORTRESS.

The troops should encamp with their front to the country, out of cannon shot of the place. If cover can be obtained, by means of undulations in the ground, or thick hedges, they may be nearer; or if there is any advantageous ground which can be taken up, it should be occupied, without regard to its being a little nearer, or farther from the place.

The greatest force will be placed where there is most fear of attack, and on the side where the approaches are to be carried on. It is of the greatest consequence that a perfect communication should be established without delay between all the different corps of the army, by repairing the roads, and by establishing bridges and causeways, in cases where any river or marsh unavoidably divides the army.

The want of this precaution caused the raising of the sieges of Turin and Valenciennes; the armies before these places being separated without a proper communication, the enemy attacked and forced one part, while the other could give no assistance. The more bridges that can be established the better, as accidents frequently happen to them. Vauban declares ten not to be too many; but there should never be less than four, and these should be covered by entrenchments.

In placing the guards round the environs of the camp, if there are any defiles, fords, or strong buildings, they must be occupied, if it is only to give a timely alarm of an enemy's approach; but if he is under the necessity of passing them to succour the place, and if they can be made capable of resisting him, they should be immediately fortified.

On the side of the place small guards of infantry will be pushed to within musket shot, taking advantage of any hollow way or cover of any sort which the country may afford; these should be supported by stronger guards, composed partly of cavalry, which should be likewise concealed a little further from the place. If the enemy make sorties upon these guards, and are able to drive them from their posts, they should return immediately the sortie is repulsed—when the place is small and weakly garrisoned, this will be very easy; against a strong garrison, these guards must be posted farther off, and be stronger, or secured by some works.

The security of a besieging army is often trusted to an army of observation, the proper situation of which is as near the siege as possible, in order that the two armies may mutually assist one another in case of need.

The convoys, foraging parties, and magazines of provisions, must be so arranged as to be perfectly secure, as any success of the enemy against them

may cause the raising of the siege. A melancholy instance of this happened when the French forced the camp at Denain, which was formed for the protection of the magazines for the siege of Landrecy, but which had been injudiciously placed at 25 miles'. distance from the siege. The provisions are sometimes conveyed with the army for the whole siege, which must be a great advantage where it can be carried into execution.

The engineer depôt should be covered from the fire of the place, and as near the trenches as possible. The first day after arriving before the place, parties should be sent into the country to bring in fascines and pickets; and it must be so arranged that these parties may not all come in at the same time, as it creates confusion. A person should be appointed to receive the materials at the depôt, count, and give a receipt for them, rejecting such as are bad; he should likewise see them arranged in proper order.

The park of artillery should be established at a distance from the place, but on the same side as the attack, and be covered by some works: it must have fresh water near it, in order to supply the horses attached to it. Small parks are formed in the rear of each attack, in order to contain the ammunition for one day. These are renewed daily from the grand park. The guns and mortars should be mounted and in readiness previous to the opening of the trenches.

A hospital should be established in rear of the attacks. If there is no house at hand, a shed must be raised for this purpose. A party should be constantly at the depôt during the siege, of which some will be sent from time to time to remove the wounded, and bury the dead.

Some good epaulements near the attacks, to cover a body of troops ready in a moment to reinforce the guard of the trenches, will be found very useful. These epaulements are made with several openings, that the troops may be able to march out without hindrance or delay.

Peasants may be employed upon works at a distance from the enemy, or in making and bringing in gabions and fascines, conveying stores to and fro, or other similar works.

If the engineers' stores can be brought up at once, unobserved by the enemy, to the spot fixed for the depôt, it will be an advantage; if that cannot be done, perhaps no very great inconvenience would arise from fixing it at a short distance from the front of attack till the opening of the trenches, so as to mislead the enemy. But at all events, such articles as it would be inconvenient to move far, such as long fascines, &c., must be made at the rear of the intended trenches; and probably, the best mode would be to form a small depôt there, in the first instance, of such stores as may be immediately wanted, which may, of course, be done undistinguished by the enemy.

As the carts which convey the stuff to make the fascines, &c., will be seen by the enemy on their road to this depôt, in order to mislead them as to the front to be attacked, common fascines, and other articles which are more easy of transport, may be taken to other parts of the camp, and can be afterwards removed without trouble.

If any considerable town is in the neighbourhood, an order will be sent immediately to the magistrates to collect bags, baskets, and timber; certain quantities of each should be specified, for they are then more likely to be furnished.

The fatigue of marching between the remote parts of the encampments and the trenches is so great an addition to the duties of the siege, that it will be an important study, and worthy of some labor, to render the communications between them, in addition to being good and complete in bridges, &c., *as short* as possible, consistent with security.

At the blockade of Malta in 1800, advantage was taken of the ordinary loose stone wall fences of the country, and by connecting and raising those that were convenient and parallel to the works, by closing gaps, and opening cross-walls, a communication was effected all round the fortress, in many parts not more than 200 or 300 yards from the place; and though only a screen, still being hidden from view, was perfectly secure, and of great service. It was more costly and inconvenient to

the garrison to destroy this screen than to the blockading force to maintain it.

In fortresses besieged, a screen of mere canvass across narrow openings that were exposed to musketry has frequently enabled the communication to be maintained free and secure.

GENERAL ORDERS RECOMMENDED TO BE GIVEN OUT PREVIOUS TO A SIEGE.

The general commanding demands the utmost exertions of the officers and men of the different corps to be employed in the ensuing siege.

The covering parties being ordered for the protection of the trenches, the commanding officers, to do this with effect, must make themselves well acquainted with the works and ground, and consider how the enemy are most likely to make their sorties.

As the distance the enemy will have to traverse to reach the works will be very small, dispositions must be made to have immediate notice of his appearance; and the covering party must be always ready to move out briskly. At night, this will be done by a chain of posts lying down in front of the works, in perfect silence, and constantly alert that they may not be surprised: these will have smaller posts and sentries in front of them. If a single man or two should come out of the place to reconnoitre, they must not be fired at, but allowed to pass within the posts, and then made prisoners.

During the day, the covering party will be all within the works; and sentries posted in the best situations for observing any approach of the enemy.

Sorties must be repelled with the bayonet, by strong reserves kept together for that purpose, and particularly by acting on the flanks of the enemy. If he should be so rash as to come far from his works, and the covering party is in the readiness it always should be, it is very probable he may be cut off.

If attention is paid to the above instructions, the enemy's sorties can be of no avail to him.

When parties are required to keep down the fire of the place, it will not be done by placing a large number of men indiscriminately in any situation to keep up a heavy fire, and waste their ammunition at nothing; but an adequate number of riflemen, or select men and good shots, will be dispersed in the most advanced and favorable points. They will be made to cover themselves by forming a loophole of sandbags, fascines, or stones, in such manner as to leave only an opening for their musket; and they will be directed never to fire but at an object, and with steady aim. After loading, they should leave the musket pointed towards the enemy, and then constantly watch for a favorable opportunity to fire. A small quantity of ammunition employed steadily in this way will cause the enemy great loss, and effectually reduce his fire.

Particular watch will be kept by the firing party on the enemy's gunners. The hours of relief for the covering parties will be 5 a.m. and 5 p.m.

It is however on the working parties that the most arduous attention of the officers will be requisite, to preserve regularity, and encourage the greatest possible exertions on the part of the workmen. The length of the operation will depend in a great measure upon their efforts.

They must be constantly moving about their respective parties, seeing the directions of the engineers carried effectually into execution. The officers of engineers are responsible for the proper distribution of the working parties—the officers of the parties, for the quantity of work done.

The reliefs of the working parties will be every six hours, *viz.*, 6 p.m., 12 at night, 6 a.m., and midday; the meaning of which is, that they should be absolutely in the trenches to commence work at those hours. The greatest punctuality must be observed to their time, particularly the afternoon relief, which will be at the engineers' depôt never later than 5 p.m. The other reliefs must be at the engineers' depôt at least half-an-hour before the time of relief, where they will be told off by an officer of engineers, and each party sent under guidance of a sapper.

The working parties will be employed by task-work, wherever it is possible; on completing their allotted task, the party will be dismissed by the

officer of engineers on duty, with a written certificate as follows:

> "Dismissed the party of the —— regiment, under ————, at —— o'clock, its task having been completed."

This certificate the officer, before leaving the trenches, will give to the field officer commanding the working party. The task in the trenches will be 12 cubic feet of excavation per hour for each man of the number *ordered* for the party. This, the general is given to understand, is a moderate allowance, and may be done much within the time, if the workmen exert themselves.

When the appointed tasks are not completed, the officer of engineers on duty will report the reason to the commanding engineer, who will give in a daily progress to the general commanding, specifying the corps employed, the names of the commanding officers, instances of good exertion and proceeding, as well as causes of failure, should they occur.

An extra allowance of liquor will be issued to such of the working parties as the field officer commanding them is satisfied have done their duty.

In all cases, the old covering parties will not quit their posts till the new relief has taken them up; but, in the working parties, the new relief will not enter till the old one has quitted the work.

In cases of sortie, the officers of the working parties will not allow the men to quit their work

unless absolutely necessary; and then they will make them carry out their tools with them, and will assemble them at as short a distance in the rear as possible, in order to return to the work immediately the sortie is repulsed.

Both covering and working parties will be given by entire corps as much as possible.

WORKING PARTIES.

It is very common to give the workmen a pick-axe and shovel alternately: sometimes on account of the men being loaded with their arms; sometimes from a scarcity of tools; and sometimes because it is by many officers thought sufficient. This mode appears, however, to be attended with many inconveniences.

1st. It frequently does not suit the soil, and then becomes a plea for idleness.

2nd. If a tool breaks, there is no remedy on the spot.

3rd. From breaking and being mislaid, the relief seldom find a sufficient number.

4th. If any confusion takes place, as will at times unavoidably happen, from accident or perverseness of the men, shovels are found without picks and picks without shovels, and to renew order among them is an endless task. Where each man does not carry both pick and shovel, it is absolutely necessary to have a small reserve of tools brought up.

From the irregular way in which working parties are conducted and attended to by their officers, the men on that duty frequently behave under fire in a manner they would scorn to do in action; and there is often an erroneous idea existing, that they are not to continue the work when some fire happens to be directed upon them; whereas it *may* be necessary, on many occasions, to continue the work in very exposed situations; and frequently the fire upon them is more trying than effective. Undoubtedly, when portions of work can be performed without keeping men out, exposed to any sharp fire, which perhaps is only for limited periods, it is the duty of the officer of engineers to have them drawn in, and put out again when the fire slackens; or the object of the work may not be worth many casualties, on which cases probably he will have instructions; but in the few cases where men *must* be exposed, as on the berme and parapet of batteries, &c., the work *must* be done in spite of a few casualties, taking, however, every precaution, and keeping as few men exposed as possible, by making them work hard and relieving them often.

ARMED WORKING PARTIES.

When the besieging force is small, it is sometimes necessary to send the working parties to the trenches with arms and accoutrements; and, indeed, many officers are advocates for it at all

times, as a mode of easing the duties by necessitating weaker covering parties (the only possible argument in its favor); but there are many objections to this mode: 1st, the inconvenience and time lost in taking care of their arms, and working in their accoutrements; 2ndly, the mischief done to the arms, by laying them, as they must do, along the reverse of the trench; 3rdly, the repeated confusion and mixture of covering and working parties: so much so, in case of a sortie, that there is no chance of getting them back to their work; and 4thly, the impossibility of their carrying their arms, tools, and a fascine or gabion,—a most serious inconvenience. If it is insisted upon, however, that the working parties have their arms, it would be of great service to obtain, at least, the evening relief without them, as it is this relief which is chiefly required to carry out tools, &c. It is seldom also that sorties are made at those hours. The midnight and day reliefs might go with their arms, when sorties were more probable.

DETACHMENTS FROM DIFFERENT CORPS TO BE AVOIDED IN FORMING WORKING PARTIES AT A SIEGE.

Doing duty by detachments is attended with the worst possible effects, and most particularly in a siege.

There is a spirit in British troops, when under the eyes of their own officers, with the confidence

of acting with their own comrades, and with the fear of disgrace and hope of credit before them, that makes them do what few others will; and it is not at all derogatory to their character to say, that they will not do their duty before the enemy, if order and discipline is not exerted; and how can it be, when parties from different regiments meet on duty, and neither officers know the men, nor the men their officers? Every man is not a hero, to do what is right when unobserved, in circumstances of difficulty and danger, merely from principle. All soldiers in the world are actuated by these feelings.

It is by night that the service suffers chiefly, when acting by detachments; and more especially in working parties, where the disgrace of abandoning the duty is not so much considered; indeed, not near so much amongst us as it ought to be.

Particular pieces of work, such as a battery, for instance, given to a whole corps to execute, has been attended always, when put in practice, with the best effects, and is much to be recommended.

MEANS OF REDUCING THE FIRE OF THE PLACE.

Works of attack cannot be carried on nearer than 200 yards from a fortress or fort of the least consideration, unless means are employed to keep down or greatly reduce its fire.

Nor can the storm of a breach, on which a flanking fire can be brought, be attempted without great risk of failure, and almost certainty of very heavy loss.

Hence the cause for reducing these means of defence; and it is well to advert to these principles, because where the necessity does not exist, the formality of the operation may be dispensed with.

There was a striking instance of this in the siege of Ciudad Rodrigo, in January 1812.

The part of the fortress attacked consisted of a revetted line of ramparts, surrounded by a revetted fausse braie, with a ditch and very low counterscarp, the whole unflanked, and the two escarps seen nearly to the foot from a height within 500 and 600 yards' distance.

The time that could be given to the siege, before a relieving army might be brought to raise it, was short.

The project was, accordingly, to effect a practicable breach by a powerful artillery from the height, and then to storm at once, without approaching step by step in the more ordinary manner.

Twenty-six 24-pounders were accordingly placed in battery for the purpose, and proceeded unremittingly in the work of breaching, *without paying any attention to the fire of the place*, which had a good garrison, and was well provided with artillery.

The French engineers remarked upon the singularity of this proceeding, but it was founded on good principles.

The fire of the garrison could not check the operation of breaching.

It was not the intention to carry the works of attack very near the place; although during the operation, a small parallel was, with some difficulty, constructed on a lower intervening height, within about 200 yards. As the breaches were not flanked, there was no absolute necessity for opposing the fire of the place; and any means applied to it would have been a reduction of those for the more urgent object of breaching.

The above is a very rare case, arising from defective fortification and the pressure for time.

Under all ordinary circumstances of sieges, it is necessary to pay great attention to the reduction of the fire of the place; and, generally speaking, the result of a siege operation, as regards certainty of success, amount of loss sustained, and time engaged in the undertaking, will be dependent upon the efficiency of the means employed for this purpose. If they are abundant, and skilfully managed, the engineers' progress will be rapid and easy, by day as well as by night; but it may be understood how effective the fire of the besiegers ought to be, when it is brought to mind, that *the fire of the lightest piece*

of artillery on the head of a sap, will effectually stop its progress during daylight.

BRITISH SOLDIERS IN THE TRENCHES.[1]

It is a melancholy fact, and which unfortunately tells particularly against the operations of the engineer department, that British soldiers, who have undoubtedly as much spirit as any in the world, should not be ashamed of flinching from work under fire; but I think this, as well as their inactivity and want of exertion on working parties, will be very much got the better of, when we have proper means and experience for carrying on a siege with *éclat* and certainty. Works are not executed by the British in the time they should be, nor at all with the alacrity with which they are in other services. This is evident to every one; and an outcry is immediately raised against the want of skill in the engineers. I have known our men refuse to take out their gabions and set to work; the business is new to them, they want confidence, and sometimes tell the engineers, that they are taken out to be butchered. I have myself placed, at different times, hundreds of gabions with my own hands, and then *entreated* the men to go and fill them, to no purpose.

At one of the sieges in Spain, I had an opportunity of pointing out to the Duke of Wellington, a French and British party performing a similar

[1] From notes taken during the Peninsular war.

work of a trench, parallel to each other, and divided only by a wall; and while the Frenchmen were working like so many ants, with officers and non-commissioned officers walking about from right to left, encouraging them, on our side was, here and there, to be seen at intervals, a single shovelful of earth thrown up, and no appearance of activity at all.

The unmilitary light in which the working parties are looked upon in our service, is very unfortunate. A working party at a siege seems to be held in the same consideration as one to clean out a barrack; and as little attention and regularity enforced at one, as at the other, until the officers are remonstrated with by the engineer, at which they frequently appear much surprised.

There is one thing, however, to be said in favor of our men: which is, that they are usually much too hard worked at sieges. It is very common to see men come into the trenches in the evening, who only left them the relief before, and had perhaps two or three miles to go to camp. It is well worth the consideration of the commanding engineer, at the commencement, to calculate precisely what number of men can *fairly* be given by the besieging force for the trenches. The men should not have trench duty of any sort oftener than six hours in the twenty-four, upon an average; and this cannot be calculated by taking the number of effectives present, and dividing them by

four, for the number of covering and working parties, for there are so many men in regular employs, &c., who never go into the trenches, that it requires a more particular investigation; allowance must also be made for the parties the artillery will require. Certainly five hundred men, comparatively fresh, that is, fairly worked, are worth more than double the number of harassed men, who cannot be made to exert themselves; and if they have four reliefs of the trench duties, the other three-fourths will have enough to do, with all the camp and other duties, to make the business by no means too easy to them. Implicit faith must not be given always to the adjutant-generals, who will constantly say, "Ask for any number of men you please, and you shall have them;" and in this sweeping manner, think to take away all excuse from you for not getting on; without considering that the unfortunate men, harassed in this manner, neither will nor can do what you require from them. It is therefore the best plan to take only such a proportion as ought to be able to work well, and to make the best of that number.

SORTIES.

In ordinary sieges, sorties in much force, made upon the approaches when not less than 250 yards distant,—that is, up to the second parallel and its batteries, or farther,—can seldom be very injurious to besiegers, unless the latter are guilty of great

neglect or want of caution, or have very imperfect means of protecting themselves.

The garrison, in making a sortie, has one advantage, namely, the shortness of the distance to be passed between the first alarm, and coming in contact with the enemy; so that if the besiegers are negligent, it partakes of a surprise; but that advantage may be neutralized by the troops in the trenches being taught always to expect such an attack at any moment, and by the measures to be adopted being thoroughly understood.

After the French had made one or two sorties at St. Sebastian's with some success, on a parallel at about 200 yards' distance, the guard in the exposed part of it were made, during the night, to sit on the reverse of the trench, with their arms in their hands, in expectation of another, and under instructions to charge the enemy the instant they should be seen on the parapet. This accordingly took place, and it was driven in at once, almost without a struggle, and was the last attempt of the kind.

The sortie is also considered to have an advantage in being covered by the fire from the place; but if it be advanced to any distance from the works, it will probably suffer more loss in retiring to them, than the besiegers will from the artillery of the garrison.

The disadvantages of the troops making the sortie are—

1. That they necessarily attack a superior force, probably very superior ; the ordinary rule is, that the guard of the trenches should be equal to three-fourths of the garrison; it is seldom, if ever, that a sortie will be of anything like that proportion, and the far greater number are of comparatively small force.

2. That they are under the moral impression that eventually they will be forced to retire ; and the only question being *when* that is to take place, they must be inclined to yield to the first spirited attack made on them.

3. In retiring, which they must necessarily do, in some confusion, the exposure and consequent loss must be heavy.

4. Every loss to the garrison is irreparable; whereas the supply for the trenches is, as it were, inexhaustible; in other words, the advantage would be with the besiegers in the loss of man for man with the garrison.

It would of course be of vast importance to the garrison if, by sortie, it could obtain possession, even for a short period, of any of the armed batteries of the attack ; but such an advantage is not to be anticipated, unless occasionally, perhaps, in sieges of very large places.

The principal efforts are made upon unfinished portions of work, and the success will be more likely to be effective, if such unfinished part is extensive, and consequently farther removed from support.

A very short possession of parts of the trenches, lined with gabions, may cause much trouble, time, and casualties to the besiegers; the gabions being overturned into the trench and partially cut, are extremely difficult of removal, thus adding greatly to the difficulties of the sap and general progress of the near approaches.

Sorties should be always opposed by a brisk advance with the bayonet, and not by dispersing the guard along their parapets. The only men habitually on the banquette, are the necessary sentries to give timely notice of the approach of an enemy. Any other portion that it may be thought right to place at the parapet, for the purpose of receiving the advance by a fire from thence, should be told off and instructed for the purpose; but the greater proportion should remain collected in reserve for a charge. Firing parties are sometimes posted in the advanced works, to act against the defences, and would bring their fire to bear, of course, against a sortie in their front, although not the primary object for which they are so placed.

Every attempt should be made to act upon the flanks of the force making the sortie; if it is obstinate, and considerably advanced, it may be thus perhaps more or less cut off; at all events, it will be more speedily made to withdraw, and probably with more loss.

If the trenches are near, no sortie of much force can well be made, except by advancing from

the sides collateral to those of the attack ; in which case their own flank must be presented to batteries and works in rear, which should be prepared for that purpose.

It will be an object of care and caution not to allow the guard to follow too far, or to remain out longer than necessary; otherwise it may sustain great and unnecessary loss from the fire of the garrison.

It is much more difficult to regulate the proceedings of the working parties in cases of sortie, than of the guard.

Sorties are sometimes made (particularly by night) exclusively to create alarm and confusion, which must be met by firmness and judgment.

The working parties will, in all cases, rally and form behind the reserves of the guard.

If they have not their arms, they will take care to carry away their tools with them; if armed, that is not to be expected : in the latter case, they form as a second reserve to the guard in the first instance, and are brought forward into action in support of it, if necessary.

In either case they are brought back to their work immediately the ground is cleared of the enemy ; and it is a great effort of discipline, that this should be done completely, and with alacrity.

On night works, to prevent confusion and mistakes, the working party must always be made to understand thoroughly when there is any portion of the guard in their front.

Commanding officers of the guards of the trenches should make themselves well acquainted with the position and nature of the works and approaches, making every arrangement for the system to be adopted for their complete protection.

THE EMPLOYMENT OF RIFLEMEN AT SIEGES.[1]

It is an ordinary proceeding at sieges to employ select bodies of marksmen against the artillerymen of the garrison.

With the old musket, they posted themselves at different distances, not usually exceeding 200 yards, from the enemy's batteries ; and their effect was such as very commonly to silence absolutely the guns immediately opposed to them.

With rifles and the modern minié muskets in the hands of good shots, the effects may be produced at much greater ranges.

The men should be *selected* for being good shots, energetic, and spirited; they should have officers of the same qualifications (though not necessarily good shots) and of intelligence. The service, when well executed, should be entitled to great credit.

In order to protect the trenches from the effects of the fire of the garrison, and to close with the artillery as early as possible, parties of such riflemen should be established in dispersed order,

[1] This paper was given to Lord Raglan during the siege of Sebastopol, and circulated by him as a general order.—EDITOR.

in distinct pits sunk at night in front of the besiegers' works. In each pit, two men usually remain all day, under cover of the earth excavated, and some sand-bag loop-holes, firing at every favorable opportunity; they have no covered communication with the trenches, but, as individuals, occasionally run across to or fro, without much loss; the pits may be from 5 to 10 or 20 yards asunder, and with practised men, the service is continued actively and effectively *in spite of any opposition. When the artillery in front open upon them, it should be considered a sure sign that it is suffering from the fire, and should encourage the parties to increased exertions;* and the contest usually ends in the early superiority of the musketry. As these men are dispersed and well covered, the direct fire of shot, shell, or grape, has little real effect upon them, while their fire on the enemy's gunners is very destructive. Any periods of heavy convergent fire from different directions on small portions, may render it proper that they should keep close for a time; but always in readiness to resume their work, as opportunities offer.

Their peculiar objects should be to act against the enemy's artillerymen, working parties, or any bodies, or individuals, that are exposed, avoiding any contest with other riflemen similarly posted, as a waste of labor and ammunition, and which can lead to no result, except perhaps to favor the

enemy's desire to draw the attention from more important objects.

These men should be supplied with larger quantities of ammunition than others, although the consumption will not always be very great, as it is by steady aim and attention to the practice, rather than by quick indiscriminate firing, that the greatest effects are produced.

A continuous trench is far more favorable for this service, when it can be obtained, than detached pits: the parties have more freedom of action, can support one another, and the whole being lined with sand-bag loop-holes, the enemy never knows where the men are, nor from whence to expect the shot; and the longer ranges at which the modern rifles and minié muskets are serviceable, renders this more practicable.

The value of this particular service will be very greatly enhanced by the superior expertness of the soldiers as marksmen.

STORMING PARTIES AND ASSAULTS.[1]

The reasons why our assaults occasionally fail are, in my opinion, various.

In the first place, it is a rule, that the troops immediately on duty, or near the spot, are always to storm, or do whatever service might be required. These troops may be most unfit for it, and by this

[1] From notes taken during the Peninsular war.—EDITOR.

mode, the good old custom is done away, of employing grenadiers, that is chosen men, for occasions of difficulty. There are no troops in the world that can be taken indiscriminately for brilliant services, and, undoubtedly, none are more so than storming works; besides which, the duties are often taken by detachments, consequently the officers and men neither know nor care for each other, nor is there the stimulus of *esprit de corps* to push them on, and with such a system, the officer to whom the command falls may be very unfit for the particular service.

The mode of attack is often very objectionable, and the number of men employed utterly insufficient. At Burgos the assault was thus ordered: four hundred men in detachments, with five ladders, were to proceed to a hollow road under the wall, and to get under cover there: two hundred of these were to become a firing party from the bank, and to keep the enemy down from the wall; then of the other two hundred, thirty were to advance, and place the ladders to the wall (the ditch was no obstacle). *When the ladders were placed,* an officer and twenty men were to advance from their cover, and mount them, and when they were *well up,* twenty more were to follow them, and so on successively by twenties till the two hundred were in, who were then to secure themselves in such and such situations, &c. By this mode, the first small party has, in fact, to take the work by

itself, without the encouragement of a close and strong support; and if they do not succeed, the next party, who coolly from behind their cover see them bayonetted, are valiantly to jump up and proceed to be served in the same way; the argument in its favor (as stated to a hint I gave for a contrary mode) was, "Why expose more men than can ascend the ladders, or enter the work at one time, when, by this mode, the support is ordered to be up in time to follow the tail of the preceding party close?" My answer is, because large bodies encourage one another, and carry with them the confidence of success; because there is more chance of a few very brave men to lead; and because, though we had but three ladders up out of twenty at the storming of the Castle of Badajoz, and therefore not more than twenty or thirty men could mount at once, I am convinced it was only carried by the whole 3rd division being there, and the emulation between the officers of the different regiments to get their men to mount, and although we lost six hundred or seven hundred men, IT CAUSED SUCCESS, WHICH EVENTUALLY ALWAYS SAVES MEN.

The miserable, doubting, unmilitary policy of small storming parties, on the plea that *"if we fail, we can't lose many men,"* causes more mischief, loss, and disgrace, than any other proceeding in war.

MILITARY LABOR.

It is a matter of some importance to ascertain and define the value of military labor, and the mode of applying it to the greatest advantage.

It may be affirmed, that the services that may be rendered in a campaign, by zealous and well-regulated work to be performed by the troops, are not sufficiently appreciated, nor sufficient pains taken to encourage and enforce them.

The ordinary day labor of soldiers is inferior to that of any other class of men; and there are many reasons to account for it.

1. Soldiers have no inducement to work hard; it is not to procure them a livelihood, nor have they any encouragement for exertion, nor punishment for indolence.

When set to work, it is not uncommon for a soldier to remark, that he enlisted because he did not like work.

2. Commanding officers have a great dislike to their men being so employed, as it wears out their clothes, and is considered to tend to their being less well set up in the ranks.

3. Officers and men are apt to consider it as an extra and unprofessional duty.

It is very desirable that these feelings should be corrected, and that the army should become sensible of the advantages to be derived from laborious exertions with the pickaxe and shovel,

as laid down in the Queen's Regulations, and commonly but little attended to.

Let an army once take the field well provided with engineers and sappers, and a good depôt of entrenching tools—let them never neglect, when near an enemy, to work at improving their communications, bridges, &c., strengthening outposts, and entrenching themselves with judgment in every position in which they can be attacked—and they will soon find the advantage it will give them in a day of action ; so great, that a vast deal more stress will be laid on the system than is now attached to it.

If any officer, who has seen much service, will recall to mind the days on which he has been engaged, and conceive the force which received the attack, (whether his own, or that of the enemy, but particularly his own,) with such redoubts, and works, and cover, as could, with the means which will be found suggested under the heads entrenching tools, stores, &c., have been thrown up even in twenty-four hours, he will at once perceive how far superior his situation would have been, and with how many more chances of success.

History is full of examples in proof of this.

The gain of the decisive battle of Pultowa, in which Charles XII. was defeated for the first time by the Russians, was attributed to a few very imperfect redoubts, thrown up by the latter during the preceding night.

In the hard fought battle of Borodino, in 1812, the redoubts are said to have occasioned immense loss to the assailants, although of so weak a profile, that, at last, the French cavalry made its way into them.

From the commencement of the Duke of Wellington's campaigns in the Peninsula and Belgium, Vimeira, Talavera, Busaco, Fuentes d'Onor, Albuera, the Nive, and lastly, Waterloo, each have presented circumstances where the position of the British army might have been greatly improved by a timely and judicious application of entrenchments, such as there was time for; many casualties might have been saved, and success made more certain, besides the innumerable situations where such support would have been of great value to outposts and detachments.

WHY IT IS PREFERABLE THAT SIEGE BATTERIES SHOULD BE ERECTED BY THE ENGINEERS RATHER THAN BY THE ARTILLERY.

The practice of erecting siege batteries by the engineers in our service, contrary to that of others, is a very good arrangement; for, though it should not prevent proper respect being paid to a person in the situation of the commanding officer of artillery, by explaining, as early as possible, what is the project, and, consulting him upon the situation of the batteries and distribution of the pieces, it prevents the absolute necessity of formal

consultations, which lead to loss of time and endless differences of opinion and, perhaps, ill-blood. At present, the artillery have always ample employment, and of the most important nature; if, therefore, they were also to make the batteries, they must have larger means, and for a work totally different from their usual services, and precisely similar to that of the engineers. Under such a system there *must* arise confusion and mixture of working parties, tools and materials, and frequently loss of time, as the parallel, in this case, must be first executed, and then the artillery and engineers would have to consult together upon the project for the batteries; whereas, as at present in our service, any moment may be seized for commencing the batteries, sometimes even before the parallel, which may afterwards be carried round it.

A much greater quantity of stores also must be carried; for the artillery must have their own tools complete, as well as the engineers; and most probably the army cannot furnish strong parties at the same time for both, and, in consequence, on one side they will remain idle.

Though custom would probably make artillery officers, in other services, reject with disdain any proposal for their giving up this part of their employment—as no service likes to have any portion of its usual duties taken away from it, although frequently from an unfounded prejudice—I think our own artillery should rejoice at preserving only

the brilliant part of the service, which they are enabled to execute so completely and well, in some measure from this very advantage.

There are individuals of the artillery, actuated in some degree by corps prejudice, (of which, however, they are probably not aware,) and indignant at the silly idea of being a mere "mechanical tool," who would alter this arrangement in our service. Their principal argument, and indeed the only one I can understand, is that the French and many other nations do as they would propose. Let us however examine how far it would be advantageous to make an alteration, and if we see no good reason for it, or indeed the contrary, why should we blindly follow the French, or any other power?

It is said that the artillery officer must be the best judge of the proper situations for the batteries to produce the required effect. No one certainly can be a *better* judge; but that point is so simple, and so intimately connected with the plan of the attacks, that the officers of engineers cannot be at any loss upon it.

Again, it is said that because he arms and has the service of the batteries in the siege, he ought to make them. For the same reason he should make the roads he travels upon.

The real and sole cause of his complaint, however, arises from his not being an active partner in planning the operations of a siege. The greatest inconveniences, however, would ensue from such an

arrangement. All consultations between persons in equal authority, for plans of operations, lead to dissensions, and are incompatible with the true principles of carrying on the service. This has been proved repeatedly with naval and military commanders on the same service, with generals in command of armies of different nations when acting together, and in the case of the French marshals, when one was not placed very decidedly under the other. It is constantly the case between two officers of the same corps, and must be so, in a much larger majority of cases, between officers of different corps. It may be said that the general commanding will decide between them; but this mode, leading to a feeling of triumph on one side and of discontent to the other, must be a detriment to the service, and would at any rate be a tiresome office on the part of the general to settle between the contending factions; that this is experienced very much in all services where this mode is adopted, there can be very little doubt. One person must be charged with each business of an army, subject to the general, who is himself supreme in all; and if so, the batteries being so intimately connected with the attacks, should undoubtedly be arranged and executed by the engineers.

It is in consequence of the inconveniences which the French have experienced in their system, that they have been led even to think of the monstrous and impracticable union of the two corps.

ON THE IMPORTANCE OF A WALL-PIECE.

For the attack and defence of fortresses and fortified posts, a number of fire-arms of a power between the best musket and the smallest piece of artillery would be extremely useful.

Many of the devices adopted in works of attack and defence are based upon the known penetration of the musket bullet. The power then that should first make use of a fire-arm at sieges of a more powerful kind, and with a greater power of penetration, would possess advantages that are well worthy of consideration.

There are arms professedly of that character, called wall-pieces, or *fusils de rempart*, but they appear to be of old date, have never been used in recent times, as far as my knowledge goes, and it is believed have not all the qualities that are desirable.

The requisites for such a piece are—

1. To carry a bullet of from four to eight oz. in weight, with great force and equal precision as the best rifle musket, and with greater facility for hitting objects at ranges exceeding a few hundred yards, as they would require smaller angles of elevation.

2. A power of penetration into wood, iron, or earth, effectively greater than can be produced from any soldier's musket, to be proved at ranges

from 30 to 100 yards, the increased power not to be less than one-fourth or one-third.

3. A degree of lightness and portability of each part that will enable it, with its stand and ammunition, to be carried and placed in position readily by hand, for service behind parapets.

4. To be of the form and character of a musket that is applicable to any part of a parapet, so that the men serving it can be easily covered to their full height by a few sand bags.

5. To be loaded at the breech.

6. To be stocked like a musket, and fired from the shoulder, by being mounted on a swivel in a block of wood, or stand, to take the recoil; the stand to be of a form that may be readily applied to a breastwork of any kind, and not be in the way of the men serving the piece.

Three or four men would be sufficient to convey such a piece, with its stand and proportion of ammunition, from moderate distances, into any work, and one man would suffice to serve it. It could be covered by an ordinary parapet and sandbag loophole, like a soldier's musket; and its effect would be to pierce through the present musket-proof defences of timber, sandbags, fascines, &c., and to bear powerfully and at longer ranges than musketry on an enemy's batteries, penetrating through the weak parts of the embrasures, while it would be served as rapidly, and with nearly as small means, as the musket.

Such a weapon would likewise be applicable on many occasions in the open field against bodies of men, or an enemy's artillery.

Years ago, I repeatedly urged Mr. Lovell, late inspector of fire-arms, on this subject, and latterly he assured me that he was preparing an arm that he thought would be satisfactory. Perhaps something may be traced of his researches and intentions, that his investigations, so far as they may have gone, might not be lost.

IRREGULAR SIEGES.[1]

An irregular or accelerated attack (*attaque brusquée*) is one in which the tedious forms prescribed for the reduction of fortresses are wholly or in part dispensed with, and much judgment is required in the general and the engineer to know when it may be applied with effect; that is, to reject each form in precise proportion to the defects of the place or the force of circumstances, and no further; for there must be more or less risk of failure in operations so conducted, if applied in excess; whereas, nothing ought to be more certain than the result of those that are conducted on regular siege principles.

Two leading causes may justify such an accelerated attack:

1. Defects in the fortifications, or in the state of

[1] From the R.E. Professional Papers.

the garrison and its supplies, admitting of a voluntary and reasonable course of proceeding for shortening the operation.

2. The force of circumstances in the condition of the army attempting the reduction of the place, which may oblige the commanding general to an irregular proceeding that would be otherwise unjustifiable.

Nothing can be more precise than the principles for the reduction of any fortress, and nothing more imprudent than to deviate from them unnecessarily; but the ordinary *rules* deduced from those *principles* assume the fortifications to be well provided with everything requisite for a good defence.

In proportion as either of these are defective, the regular forms that otherwise would be required may be dispensed with. The following are among the cases in which advantage may be taken of these defects:

1. Treachery, or very culpable negligence on the part of the garrison, may admit of a place being taken by surprise; but this may happen to the strongest and best provided fortress, and is not meant to be treated of in this article.

2. A general may be frequently justified in making an assault by escalade, where a place is under a combination of any of the following risks: if it has escarps not exceeding 24 feet in height, or wholly or in part unflanked, no revetted outworks, nor a wet ditch, or a garrison extremely

weak in number, in proportion to the extent of the enceinte.

3. If the fort or fortress is of small interior capacity, unprovided with adequate bomb-proof cover, and the attacking force is well supplied with artillery and projectiles, particularly well with mortars and shells, it is frequently to be reduced by bombardment alone. Large, populous towns have been reduced by a general bombardment directed on the houses, lives, and property of the inhabitants; but this is an unmilitary proceeding, and, in modern days, considered an unjustifiable course, frequently resisted with success, when the assailant will be compelled to retire with odium as well as disgrace.

4. The rules laid down for siege operations comprise a variety of works and proceedings for surmounting the distinct impediments that are presumed to exist, for the purpose of retarding the besiegers. In proportion as the garrison shall be without the means of applying those impediments, the works defined to overcome them will become unnecessary. Thus, if the strength or composition of the garrison, or the nature of the ground, will prevent sorties, such part of the parallels as serve for the guard and defence of the trenches will become superfluous; and for the same reason the first works may be greatly advanced, for the fire of the artillery will not prevent the trenches being opened and established very

near the place. Again, if the escarps of the body of the place are exposed low enough to be effectively breached from a distance, the serious difficulty and delay of establishing breaching batteries, very close, may be avoided; and if connected with this disadvantage, the breaches so formed have at the time no available flanks, and are not covered by outworks, or only by such as are very imperfect, the advance of the storming parties may be also from a distance. Although the breaches may be opened from a distance, it should not be done until the besieger is in a position to storm them as soon as they become practicable.

5. Again, if the garrison is very short of artillery and ammunition, great liberties may be taken in the progress of the siege.

Advantage ought to be taken of all such circumstances as above enumerated, under any condition of the army of attack,—using judgment and consideration, however, as to the extent to which deviations from ordinary practice may be justifiable.

Occasions, however, arise where a general has only the alternative of attempting these irregular operations, although the fortifications may not be, strictly speaking, exposed to them; or of foregoing important advantages that would be open to him by the reduction of the places.

He may be essentially wanting in the necessary equipment for the siege in form, in quality, in quantity, or in all these; or he may not be master

of the proper season, or may possess a knowledge of a power in the enemy to bring against him a sufficient army to oblige him to raise the siege, before the period upon which he can reasonably calculate as necessary for the termination of the process of a regular siege. In these cases, he must well calculate his means and the consequences of the enterprise : such as—

1. The time and sacrifices that will probably be required by the most energetic proceedings it is in his power to adopt.

2. The probability of success or failure.

3. The consequences in either case, or of the alternative of the more cautious system of not making the attempt at all.

No more striking illustrations of operations of this character can be given than those of the sieges in the Peninsula by the Duke of Wellington,—all of them, by the force of circumstances, carried on necessarily against both *rule and principle.* In some, time could not be given for a siege in form ; in most, there was a deficiency of artillery means, owing to the difficulty of transport in that country; and in all, the engineer departments in organization and means were thoroughly inefficient. In Jones's *Sieges* will be found many interesting lessons in these irregular attacks of places, exhibiting their hazardous character, and how success was so often obtained solely by the admirable dispositions of the general commanding, the zeal and devotion of

the officers of the ordnance corps, and the energy of the troops.

One instance may be given, where even these qualities were insufficient to obtain the object. Burgos had been given a considerable degree of strength, and possessed a garrison of 2,000 men; but it had many defects, laying it open to various proceedings for the acceleration of operations against it. It was very desirable to obtain possession of it if possible, though the available means were very discouraging.

The heavy artillery consisted of only three 18-lb. guns, with 1,000 rounds of ammunition, and five small iron howitzers; one 18-lb. gun alone remained serviceable to the end of the siege.

The engineer means consisted, from first to last, of four officers only, (of whom one was killed, one badly wounded, and a third was for some time disabled from sickness,) and a small depôt of 1,000 entrenching tools, but without a single sapper.

These artillery and engineer resources were merely what habitually accompanied the army, for the reduction of any small post that might be occupied by the enemy. During the progress of the operation, which lasted nearly five weeks, the works of attack must have been discontinued altogether for want of entrenching tools, had not a depôt of 2,000 been fortunately left by the garrison outside the fort.

With these small means, breaches were opened in the walls, (one of them considerable and practicable by mine,) and a sap was carried on within the outer enceinte, and within 15 feet of a line occupied by the garrison.

To other disadvantages may be added much inclement weather, and towards the close, a scarcity of even musket ammunition, arising from the rapid and prolonged advance up to that point.

After a struggle of many weeks against these difficulties, which, on this occasion, were unavoidable, it became necessary to abandon the operation on the advance of a superior force of the enemy.

It will afford a useful lesson to reflect that, had circumstances permitted the army to be provided with 10 or 12 pieces of heavy artillery, with a reasonable proportion of ammunition, a few more officers of engineers, and a small equipment of siege stores, with a single company of sappers, the reduction of Burgos, which proved so formidable, would have been effected in a few days; or even had either department been so provided, it would have fallen within the period that the army was before the place.

Buonaparte failed before St. Jean d'Acre, and in some degree from a similar cause. But these failures did not arise from the modes of operation, but from accidental insufficiency of means, encountering a good provision and peculiar energy in the garrisons,—and it is very necessary to keep these

causes distinct; for with adequate means, attacks made irregularly to take advantage of defective fortifications or garrisons, may be as certain of success as the more extended operations for the purpose of subduing places more perfectly prepared; while, on the other hand, a general may be justified in making an attempt, with means that are strictly speaking imperfect, when the consequence of success may be far more important than that of failure.

It is a very dangerous idea, however, to suppose that, by submitting to incur a certain loss, any but first-rate fortresses may be taken at once by assault, or by greatly accelerated attacks; the loss would undoubtedly be very certain, but the success most problematical. At Badajoz, the place was certainly successfully assaulted at points against which no previous siege operations had been directed; but this was *only* because the great force of the garrison was engaged at the breaches; and those assaults were wisely adopted to increase the chances in a most irregular and hazardous attack.

UPON THE IMPORTANCE OF AN EFFICIENT ENGINEER DEPARTMENT.

The advantages to be gained by an efficient engineer department have never been duly appreciated in this country.

Military engineers form an indispensable part of

any well organized army in the field, and in proportion as they are numerous and well qualified for their duties, will the army be under great advantages.

A vast amount of work of various descriptions is required, for which large bodies of soldiers can be supplied; but that work requires considerable science and art to plan and direct it, much skilled labour for certain essential portions of it, and a well organized and portable collection of implements for its execution.

Some of these works are purely military—such as sapping, particular kinds of mining, and field constructions for attack and defence—but are based upon a knowledge of the arts and professions of civil life: others are intimately mixed up with military considerations, such as the designs for permanent works: while some partake of the arts of civilians, without any necessary military knowledge—such as the construction of bridges, wharves, piers, and roads, the erection or conversion of buildings of various kinds, and the execution of the works of permanent fortification.

In fact, there is scarcely any description of work which it may not be necessary to execute with an army in the field, or at foreign military stations, and that suddenly, upon emergencies, when ample means and information are not to be obtained at any call, as they are in Great Britain.

Officers of engineers, therefore, in addition to

their absolutely military requirements, will never be able to fulfil their duties in the field, and still less in garrison, if they do not possess considerable knowledge in the business of civil engineers and builders: that they can be so perfect in both or even one as those who are eminent in those branches, is hardly possible; but by the aid of a well-constituted class of professional assistants for details, every useful object may be fully obtained, in a manner that will be economical and thoroughly advantageous to the public, nor can this be effected by other means than a military body, specially organized for the purpose.

In a siege, the advance of trenches and construction of batteries against well manned and well armed works (particularly when closing with them) are very delicate operations, requiring hard work, skilled labor, an understanding even on the part of the workmen of the relative position and power of the enemy as regards themselves, with that trying kind of resolution that will be unmoved when under a perhaps destructive fire that may not be returned. Soldiers of the line are totally wanting in all these qualities, except innate bravery, and even that is under severe trial in their total ignorance of, and consequently exaggerated idea of, the real advantages possessed by the enemy, and the irksome feeling of being bound to a pickaxe and shovel, instead of their arms, when in close proximity to their enemy. The sapper, on the

contrary, knows these to be the occasions when his exertions will be of peculiar value, and be peculiarly noticed, and if a siege could be carried on entirely by engineers, leaving to the line the completion only of the previously made trenches, it would be surprising to see the comparative rapidity and facility with which all the operations would be performed, the reduced number of men that would be required for the work, and the very great saving of casualties that would result. If this department of the army were maintained at a respectable strength, all smaller forts and garrisons might be reduced in the above manner, with a rapidity, and a certainty, which would be of the greatest advantage.

It can be clearly shown as an indisputable fact, that the Castle of Burgos, which successfully resisted the Duke of Wellington, after a six weeks' siege, would have been reduced in three weeks had there been even a moderate force of engineer soldiers with the army, and that, notwithstanding the want of other essential accessories. The very acceleration of the reduction of a place may be of enormous advantage in freeing the movements of the army, and probably greatly facilitate its means of obtaining supplies: but when the difference amounts, as in the case of Burgos, to the success or failure in obtaining possession of an important garrison, the consequences are hardly to be calculated.

And yet the utility of engineer soldiers has never

been properly appreciated in the British service. For several years after the commencement of the Peninsular war, the royal military artificers, as they were then called, were un-officered, ill disciplined, and unarmed. In the field they could be seldom usefully employed, while they added to the numbers to be fed; and it was therefore to be anticipated, that the General should not be very anxious for their presence. The case is now quite different, and no army should take the field without a strong battalion of engineers; with such a force as that of the Duke of Wellington in the Peninsula or at Waterloo, they should be kept up to an effective strength of 1,200 at least; and at Sebastopol, 2,000 would not have been one too many. Being thorough good soldiers, they would never be a burden, and in many cases, their services would be invaluable.

As the engineers would be men of peculiar qualifications, and difficult to replace, they should not be thrown away more than could be avoided in skirmishes and partial engagements; but in a general action, where every bayonet is of value, they should be brought out with the division or brigade to which they are attached; and no one can doubt that they would do their duty as well as any regiment in the field. The engineers should, therefore, be classed as effective troops for all general purposes of advance or retreat, or rapid movements of an army in the field. But

it is in the attack and defence of fortified places, passage of rivers, and construction of field works, that they would come pre-eminently forward. On such services, the sappers would not be spared, or be sparing of themselves; a portion would lead in every assault; and in the defence of places, their post would be upon the breach.

The engineer troops, from the practice they acquire in handling their tools, as well as from superior zeal in the progress of work, which is inculcated into them, and forms a part of their training, will do in eight or ten hours what costs days to soldiers of the line. There is a listlessness about work in the latter that is unconquerable, and renders it advisable to employ them as little as possible upon such duties. This may not appear on a cursory view to be of much importance, but when it is considered that the success of a campaign may depend upon the difference of one-third or one-fourth in the duration of sieges with the consequent saving of valuable lives, not to say anything of the credit of our arms, the advantage will appear of very considerable magnitude.

In favorable situations, the sappers can throw up a substantial battery in ten or twelve hours, or a tolerable redoubt in forty-eight. In a small siege, they should be in sufficient numbers to do nearly all the work; and in a large one, to do all the important portions. At the siege of Saragossa

and Sebastopol, the French employed *some thousands* of sappers and miners, who did all the work after the first operations. Without these means, these places could never have been taken.

For the operation of mining, trained men are indispensable. In the Peninsular war, ordinary artificers from the line were employed; more than double the requisite time was occupied in the operation; and the most constant and harassing care was necessary on the part of the officers of engineers, to maintain the proper direction of the galleries, and to prevent these men from burying themselves.

Besides the well-known operations of sapping and mining, there are other services of considerable importance in a campaign, which require special training and expertness in the men employed. Pontooning, and the construction of military bridges, requires much practice. The Duke of Wellington, in 1815, formed a portion of the engineer troops into a corps of pontoniers, an arrangement that was found to answer well, and should not be lost sight of in estimating the value of an efficient engineer department.

There is another occasional service, *viz.*,— Escalading, where the engineer troops are employed with great advantage. In this operation, if the ladders are carried by soldiers of the line, we know, from experience, that when they get under the enemy's fire, they feel the ladders

as clogs about their necks, and in spite of every endeavour to the contrary, will leave a portion by the way, and join their comrades in the ranks: the sappers, on the contrary, being sensible that it is a service in which they are to distinguish themselves, carry and rear the ladders with regularity and expedition, and in a way that I expect will open a new and important road to enterprises of this description.

It must not be supposed that I mean to depreciate the services of the soldiers of the line: no man can be more sensible of them than I am: what is here adverted to, are properties of human nature which are immutable.

To sum up the question of the value of a strong and efficient engineer force, by the experience of actual warfare, I am convinced that had the British forces in the Peninsula been provided constantly with one thousand or one thousand two hundred sappers, the sieges would have been shortened in duration by at least one-fourth; their success would have been much more certain, the Castle of Burgos would have been taken in half the time we were before it without success; the British operations before Sebastopol would have been carried on with *éclat*, certainty, and rapidity; and thousands of valuable lives would have been saved.

The deficiencies in this important branch of an army, during the late war, gave rise to the tem-

porary expedient of engaging civil workmen for services in connection with the army in the field, a measure which, even if justifiable by the emergency, should be considered most objectionable as a system.

It can hardly be necessary to explain the reasons why as few civilians as possible should be employed with an army: but they may, in general, be summed up as follows :—

1. The remuneration required to obtain such services, subject to periods of probable hardship and danger, must be very large,—the cost of their transport, food, and maintenance, stores, accommodation, and hospital attendance, must be at least as much as for soldiers ; and it is a delusion to expect that, when they die or are disabled, there will not be irresistible demands for pensions, allowances to widows and families, &c., although they may not be perhaps stipulated for in the engagement.

2. Their continued service cannot be relied on. No engagement, with temporary advantages, would be sufficient to prevent its being abandoned by many, under trying circumstances. Little or no loss of honor or reputation would be attached to such desertion, as it is to that of a soldier: nor would it be possible to have recourse, with them, to the same extent of punishment for the crime.

3. There is an impossibility of maintaining, with such bodies, the discipline and arbitrary control

that is essential in a campaign. This is an evil that may be partly understood by an illustration :—thus, when any regiment or corps is in an inferior state of discipline in the field, the inconvenience is found to be very great; and that, not in the day of action, when perhaps that very corps may perform some brilliant feat, but in the every-day proceedings in camp, on a march, and in its conduct towards the inhabitants of the country. It may be conceived how this evil must be increased with civilians, or very imperfectly organized bodies : indeed, what are commonly called the followers of an army, notoriously give the greatest trouble, and add greatly to the difficulty of providing for its wants.

4. Such bodies, hastily collected, can have no knowledge of works that partake of a military character; nor would it be judicious, even if admissible by the agreement made with them, to employ them under fire, or where they would be liable to be attacked. They would, in fact, be applicable solely to that particular kind of work to which they had been brought up. Their employment, even in their own business, could not be general; and when there should be no need of their peculiar qualifications, they would be comparatively useless. On the other hand, the instruction given to military engineers, in sapping, mining, pontooning, and other military objects, added to the fact, that each man is already by

trade, a carpenter, bricklayer, smith, or other artificer, fits them for almost any work that can be wanted, besides making them perfectly trained soldiers. It is also a fallacy to expect from such men as navvies,—if employed with an army, and under deprivations, — those extraordinary exertions for which they are so famous in England, where they have comfortable homes, excellent food, and plenty of their favorite beverage, porter.

Soldiers of the line, it is true, are habitually and notoriously anything but industrious workmen: they deem work hardly to have entered into their engagement; and will frequently say that "they enlisted because they did not like work." But with the military engineer the case is different: his reputation and advancement depend upon his skill and exertions; and in the field, he would compete with any navvy in the world.

The only pleas that can, with any appearance of reason, be advanced for the engagement of civilians, are either the pressure of the moment, from the deficiency of sappers, that is, to provide a remedy for a great defect in an important branch of the military service, or for the establishment of some great work of a peculiar character, such as a railway, for which it might be thought that a distinct line of skilled labor would be most appropriate. For the first object there was formed, during the last war, the Army Works Corps,—a body that, for the reasons above given, could at no time have been

efficient, and in a campaign, must have been a positive encumbrance; for the other, the navvies were engaged, and, though a full proportion of the appropriate working superintendents should have accompanied the railway, the great bulk of the work might have been well performed by military engineers, had there been numbers of them available.

With regard to the navvies who were engaged for the construction of the railway to the camp before Sebastopol, it was melancholy to reflect that, had Balaklava been attacked, as was constantly threatened, the force of troops in it being at the time unavoidably very limited, there were four hundred or five hundred able-bodied men on the spot, who would have had to remain with their arms folded, awaiting the issue. The matter was considered, and it was very properly decided, that they ought not to be brought into contact with the enemy, even if the place where they were stationed should be attacked.

From the foregoing observations, it will be seen that there can be no doubt of the absolute requirement of an engineer department of considerable strength, as a branch of an army on active service. It now remains to show its value during peace, when the service, although equally essential, partakes of different conditions.

In peace time, a considerable body of the army

of a great state like Great Britain must be kept up, not for the immediate service required of them, but for sudden and unforeseen exigencies, as well as for a foundation for the increased forces necessary when in a state of war, to which all nations must be liable, and for which they should be in some measure prepared.

The only pecuniary return that is obtained from these troops, if infantry of the line, is their service as sentries,—a very expensive kind of watchman; but make a large portion of this force engineers, and they fulfil entirely the above object of being always ready to act as soldiers on sudden emergencies; and in the interim, (that is during peace, the normal state of the country,) they are applicable for employment upon government services, at a cost which it will be shown is rather *under* that which would be incurred by the employment of the same number of civilian artificers. This comparison holds good anywhere; but in our colonies and foreign garrisons, it is far stronger in favor of employing the military body.

As the engineer soldiers are intended to be habitually employed in work, it is evident that the difference of cost of what is performed by them from what it would be by ordinary means, will mark the real *bonâ fide* expense to the public of their maintenance.

Taking into consideration every expense of bounty, drill, instruction, barracks, and hospital ac-

commodation, and provision, working pay, clothing, pensions, &c. &c., the gross amount does not exceed three shillings and fourpence per man per day. There is absolutely no charge for officers, because wherever there are sappers, there must be officers of engineers on other accounts, and the system of the corps is such, that every officer attached to sappers can perform his engineer duties also.

For this three shillings and fourpence per day, these men, who are all artificers or skilled workmen, are engaged for five days in every week upon government works. It includes their pay and maintenance for the other two days of the week, (of which one is given to drill and military exercises, and the other is Sunday,) together with all the expense of training, pensions, &c., according to the return annexed at the end of this paper. Persons in civil life, who would be employed to perform the same work, would require from four to six shillings a day ; it may, therefore, be understood how very nearly the gain to the public by their work, even taking it merely as a money question, compensates for (there is every reason to believe that it exceeds) all the expense incurred for the sappers, with the additional advantage of their being ready to turn out at any moment as excellent soldiers, on any requirement of such services against a foreign or internal enemy. Thus so much of a necessary garrison or armed force is obtained at positively little or no expense, and a

provision is maintained for a large amount of this most necessary branch of an army in the field.

As regards service in the colonies, it is also to be remarked, that should the service be required at out-stations of danger, either from eruptions of hostile bands, or from pestilence, the remuneration to civilians would be enormous, even if their services could be obtained at all.

Woolwich, 14th May, 1855.

Annual Estimate of the Total Cost of a Company of Royal Sappers and Miners, 120 strong, 260 days on the Public Works.

		s.	d.	PER ANNUM. £	s.	d.
Regimental Pay for 365 days.	1 Color Serjeant,	3	2½ a day	58	11	0½
	5 Serjeants	2	8½ „	247	2	8½
	6 Corporals	2	2½ „	241	16	3
	6 Second Corporals,	1	10¾ „	207	11	10½
	2 Buglers	1	2½ „	44	2	1
	100 Privates	1	2½ „	2205	4	2
Contingencies for 365 days.	120 Men, Beer Money, 1*d.*			182	10	0
	Allowance to Captain of Company for Repair of Arms, &c.			56	10	0
	Allowance to do. do. for Postage & Stationery			5	5	0
	Do. for Schools			1	5	0
	Do. for Schoolmistresses			3	0	0
	Do. for Libraries			2	10	0
	Do. to Married Men, out of Barracks, at 2*d.* a day each			12	3	4
				£3267	11	5½
	Paymaster's Agency on £3267 11*s.* 5½*d.* at 3*d.* in £1			40	16	10½
	Do. Do. for Postage and Stationery			2	2	0
	120 Men. Clothing—Serjeants, 4½*d.* each; other ranks, 2*d.* a day each			387	16	3
	120 Men, less 20 Married Men—Coals and Candles, each 2½*d.* a week, and 2*s.* 6*d.* a year additional for cooking Total each man, per annum, 13*s.* 4*d.*			66	13	4
	Probable Expense of Barrack Accommodation for a Company, including interest on original cost and maintenance at £2 per man per annum			200	0	0
				£3964	19	11
Working Pay, 120 Men, for 260 days, average 10*d.* a day per man		£	s. d.	1300	0	0
Deduct one-tenth for Men Sick or Engaged in Regimental Duties		130	0 0	1170	0	0
Total Regimental Pay, Contingencies, & Working Pay				£5134	19	11
Levy Money and Training Expenses for 21 years, 120 Men, at £18 each		2160	0 0			
To renew the Company at 10½ years, the same expense		2160	0 0			
		£4320	0 0			
Less 50½ Men, who it is ascertained will serve the period of 21 years		909	0 0			
		£3411	0 0			
Giving an average per Company per annum of				162	8	7
Pensions, 120 Men, less 69½ men dead, deserted, &c., leaving 50½ Men dicharged with Pension, 1*s.* 4*d.* a day each, and possessing it for 23 years		28,368	2 1			
Ditto to 14½ Men of those who renewed the Company at 10½ years, 8*d.* a day each for 23 years		4057	8 4			
		£32,425	10 5			
Which amount spread over 21 years' service, gives per annum				1544	1	5½
				£6841	9	11½
Deduct for money paid by Men discharged by purchase in 21 years, £303, which for a Company per annum is				14	8	7
Per annum Total				£6827	1	4½

Balance in favor of employing a Company of Sappers on the Works £614 15 5¾ per ann.
Average cost of a Sapper as a Military Artificer, per diem, nearly 0 3 3¾
Ditto Ditto as a Soldier 0 2 6¾

N.B.—The only allowance which does not admit of calculation is Good Conduct Pay, from 1*d.* to 6*d.* a day, granted under certain conditions of conduct and service.

The above calculations are for a Company on *Home* Service. If *Abroad* the Beer Money is not granted, and the allowance for Fuel should be lessened, as also the expense of Barrack Accommodation.

The Corporals and Second Corporals work at their trades when not employed as foremen.

THOS. CONNOLLY, L.M.S., Royal Sappers and Miners.

Estimated Cost of Employment of 120 *Civil Artificers upon Public Works, during one year of* 260 *working days.*

		s.	d.		PER ANNUM. £	s.	d.
10	Foremen of Trades .	5	5	a day . . .	704	3	4
28	Carpenters . .	4	3	„ . . .	1547	0	0
25	Masons . . .	4	3	„ . . .	1381	5	0
12	Bricklayers . .	4	3	„ . . .	663	0	0
11	Smiths . . .	4	3	„ . . .	607	15	0
3	Wheelers . . .	4	3	„ . . .	165	15	0
2	Coopers . . .	4	3	„ . . .	110	10	0
8	Painters . . .	4	3	„ . . .	442	0	0
4	Tailors . . .	4	3	„ . . .	221	0	0
3	Collar Makers . .	4	3	„ . . .	165	15	0
14	Miners or Labourers .	2	4	„ . . .	424	13	4
120	Total, according, as nearly as possible to the scale of Trades established for the Sappers.				£6432	16	8
	Deduct one-tenth for Men Sick and Absent	£	s.	d. 643 5 8			
	Less allowance for Sick Pay for one and five-sixths Men . . .		101	0 10			
					542	4	10
					£5890	11	10
	Add for Pension to 70 Men for 17 years at 1*s.* 6*d.* a day		32,576	5 6			
	Which spread over 21 years gives, for 120 men, per annum				1551	5	0¼
	Per annum, Total . . .				£7441	16	10¼

Average Cost of a Civil Artificer, per diem, is 4*s.* 5½*d.*

N.B.—In the cases of Men killed on duty in the departments, Pensions are granted to their widows, or to relatives dependent on their lives for support. No idea, however, can be formed of the annual amount of such allowances.

The rates for the Foremen and the Artificers are based upon the average daily payments made in the Ordnance Departments to day men. The wages paid by Contractors depend in a great measure upon the supposed profits to be derived from particular works. It would, therefore, produce an unfair result, if these fluctuating payments were employed to make a standard comparison between the cost of Civil Labor and that of Sappers.

At most of the Stations *abroad*, the wages of the Artificers are considerably higher.

THOS. CONNOLLY, Q.M.S.,
Royal Sappers and Miners.

EXPLANATIONS OF THE PRECEDING TABLES.

Woolwich, 14th May, 1855.

The expense of a company of sappers and miners, including every contingency, is shown in the estimate.

The amount set down for working pay might appear questionable; but tenpence a day is a fair average, when it is considered that men are frequently reduced to the lowest rates of sixpence and ninepence a day for irregularity.

It will be observed that no allowance has been included for expenses arising from the provision of medicines, and the treatment of the sick in hospital, because the public derives a revenue from the soldier's stoppage of tenpence a day: the extent of which being unknown, it is impossible to assume even an approximate amount which would afford an idea of the truth, as it bears upon the actual expense of the sapper.

The sapper at home pays the absolute cost of his rations without charge to the public; and abroad, the deduction of fourpence-halfpenny per ration, including the loss of beer money, is considered to be sufficient to cover the outlay by the government.

Tools being equally provided for military and civil artificers at daily wages in the ordnance department, the expense thereof in each case has been thrown out of the account.

Arms and accoutrements being supplied for the service of the state are not fairly chargeable against the soldier, and the expense thereof is not included in the estimate.

Nor is any charge made for command, administration, &c., as organized bodies of men, whether civil or military, must have their own officers, which may be fairly taken as a set off one against the other.

The levy money of recruits at the present *war* bounty, is detailed below. About one-fourth of the whole number enlisted for the corps are medically examined in the country by private practitioners, for which service a charge of four shillings is made for each recruit. About two-thirds of the number are conducted to head quarters from the out-stations, for each of whom the non-commissioned officer receives two shillings and sixpence, and the officer superintending the recruiting, five shillings. The remaining one-third are enlisted at Woolwich. The expense, therefore, of one recruit, taking these data to arrive at a result, is :—

	£	*s.*	*d.*			
Bounty	10	0	0			
Attesting	0	1	0			
Allowance to party enlisting the recruit	1	2	0			
Surgical examination, one-fourth . .	0	1	0			
Superintending officer, two-thirds . .	0	3	4			
Conducting to head quarters, two-thirds	0	1	8			
				11	9	0

	£	s.	d.
Brought forward . .	11	9	0
To this should be added the expense of conveying the recruits to head quarters, which, distributed over the whole number enlisted for one year both in the country and at Woolwich, gives for each recruit about	0	9	4
	£11	18	4

The next step is to account for the expenses incurred in training him as a sapper and miner, the period for which is laid down as one year, irrespective of the time he is supposed to be under instruction at drill as a recruit. The expenses for training include payments made as working pay, to cover the wear and tear of clothing, use of books, instruments, &c., allowances to teachers, and incidental items. By the statement of 1848, the rate to cover these expenses are set down at twopence a day; but it would be fairer if the rate were increased to fourpence per day. This then, for each man, would amount to £6 1*s.* 8*d.*

Taking, therefore, the amount of his bounty, and the expense of his training, one man costs the public, to fit him for the duty of a sapper and miner, £18, which, calculated for a company of one hundred and fifty men, amounts to £2160.

Ascertaining, from the number of casualties, that a company requires to be renewed nearly every ten years and a half, it is clear that the same

expenses for recruiting and training must be incurred by the public. Twenty-one years being the minimum period at which a soldier can claim a pension, it is considered that the whole expenses on these items, should be thrown over the whole period. Taking the expense of renewing and training at the same amount as the original outlay, there should, consequently, be added to the expense of the company a further sum of £2160, making altogether £4320.

But, as it is seen from a careful analysis of 240 successive enlistments from 1st of January, 1830, divided, for the sake of convenience, into two companies of 120 each, that the average discharges, after completing 21 years' service, is 50½ men out of 120, there is consequently no renewal on their account; and a deduction at the rate of £18 each (£909) is required to be made from the £4320, reducing the total expense of recruiting and training for 21 years to £3411. This amount distributed over the term of 21 years, gives, for a company of 120 men, £162 8*s.* 7*d.*

It would be very difficult to arrive at a tangible result with respect to the per centage on pensions, unless an estimate were made of the assumed pensions paid to the utmost extent to which the law of probabilities admits the circulation. As before observed, it is found that 50½ men out of 120 receive their discharges on pension after

completing 21 years' service, with ages averaging 40 years, and pensions 1*s.* 4*d.* per day. By the Carlisle tables, with reference to the "expectation of life," it is laid down that men who reach that age, live to the average age of 67.71. The value of this mean is singularly corroborated, except in unimportant decimal differences, by the experience of the "Equitable Life Insurance Company." But, as the tables spoken of are calculated for men *in health*, they are not strictly applicable to sappers, who, at 21 years' service, are frequently discharged on account of impaired health.

Their "hold on life" being necessarily lessened, it may not be unreasonable to reduce the average duration of existence for sappers to 63 years. Assuming, then, that there is no objection to this term, it is obvious that a sapper enjoys his pension for 23 years; and as 50½ men out of a company of 120, are, for that period, in possession of the pension, the amount expended by the government on this account, reaches the total sum of £28,368 2*s.* 1*d.*

There is still another point to be considered, which, though a remote question, nevertheless fairly belongs to an account professing to concentrate into an estimate every item of expense which bears upon the individual cost of a sapper. It has been shown that 50½ men out of 120 reach a period of 21 years' service, and that the remainder (69½ men) fall away by death, desertion,

or discharge, at short periods of service, whose vacancies are replaced by the enlistment of other men. Ten and a half years is stated to be the average period of renewal; and it has been ascertained, by the same process employed to reduce the 50½ men, that, of the number enlisted to replace the 69½ men, 14½ serve their full time. The company, however, should only bear its proportion of the pensions of these men, as their service in it has only counted 10½ years; the remainder (10½ years) having, so to speak, been extended to another company, which should bear its half of the pension. Taking this view to be consistent, it entails an additional charge on the country of £4,057 8*s.* 4*d.*, calculated upon half pensions at 8*d.*, per day each, to 14½ men for 23 years.

Including both items, the total payments for pension amount to a sum of £32,425 10*s.* 5*d.* To make this outlay tell upon the actual expenses of a sapper, it is necessary that the whole sum be spread over the 21 years' service, and be so distributed, that each man, whether discharged with a pension or without, whether dead or deserted, should bear his quota of the whole amount. The proportion, therefore, of the £32,425 10*s.* 5*d.* for a company for one year, is £1,544 1*s.* 5½*d.*

A small item of deduction appears at the end of the estimate for money paid by men for their discharge. This is derived, by ascertaining the number of men who made the payments out of

240 in 21 years, and dividing the result, which for 120 men, is found to be 12, and the purchase money £303, or £14 8*s.* 7*d.* per annum per company.

With respect to the estimate for civil labor, it should be explained that $\frac{1}{10}$ has been deducted for men sick and absent, for the sake of making the comparison coincide, in this particular, with the military estimate; but it is understood that out of 120 men, there are about $\frac{5}{6}$ men who receive an allowance as *sick* pay, equal to the daily rates shown in the estimate, although not at work, which of course has been taken into account in the civil estimate.

With regard to the allowances of superannuation, there is no data upon which the calculations can with certainty be based; but it is supposed that about $\frac{2}{3}$, say 70 of the 120 men, commence to receive the allowance at the average age of 50 years. Applying the Carlisle tables to these men, who, from not being subject to the trials and hardships of climate, epidemic, and war, are longer livers than military men, it appears that the average duration of life is 67.71, say 67. Seventeen years, therefore, is the period during which they receive the superannuation allowance; and calculating it at 1*s.* 6*d.* a day, which it is believed is rather under the mark, it is found that for 70 men for 17 years, the total amount paid in superannuation is £32,576 5*s.* 6*d.*, which, distributed over the

term of 21 years, gives a proportion for one year of £1,551 5*s.* 0¼*d.*

THOS. CONNOLLY,[1]
Quarter-master Serjeant,
Royal Sappers and Miners.

This comparison is ably drawn up, and manifestly with a desire that it should be just and fair; and although I would not claim the full amount of absolute gain to the public shown by the balance, because the course of the service leads, on very many occasions, to the sappers' work being of an inferior character to that of the civil artificers on the higher rates of pay, who bear the far larger proportion in the scale, still there is an undoubted showing of the very trifling cost of this valuable corps.

J. F. B.

DESTRUCTION OF BRIDGES.

In the destruction of bridges during the Duke of Wellington's campaigns, various methods were adopted according to the circumstances of the case.

The bridges in the Peninsula were usually of stone, the arches from 20 to 40 feet span, semicircular, and of one stone of 18 inches or 2 feet in thickness. The loading of the arches was some-

[1] Now Quarter-master Connolly, Royal Engineers, the author of the *History of the Royal Sappers and Miners*.—EDITOR.

times of solid masonry, but commonly of loose stones or rubbish.

The object required generally was to destroy one arch, and in order to give the enemy the greatest inconvenience and delay, the largest arch, and where there was deep water, was preferred, except when want of time or ammunition made it advisable to select a particular one that might appear weaker than the others.

The simplest principle of mining a bridge was found to be by lodging the powder on the haunch of the arch, and as near as could be on the centre of the width of the bridge, with the line of least resistance through the arch.

The best mode of forming the mine was where the side walls of the bridge above the piers were slightly built and easily got at, and the loading of the arch of loose rubbish ; a small gallery was then run in about 5 feet from the arch-stone ; and when at the centre of the width of the bridge, a return was made to the arch, and the powder lodged against it. There are not many occasions where this can be done under a very considerable time ; but, when practicable, it has many advantages : the greatest resistance is obtained to the sides and above ; the ammunition is less likely to get injured from wet penetrating to it ; there is no obstruction to the road over the bridge while preparing, and less danger of accidents after it is loaded.

In this case, the powder, saucisson, &c., are applied in the usual manner in mining; and the end to be lighted is kept within the surface of the wall, to be sheltered from the weather.

The common and quickest mode of mining a bridge is by sinking down from the road above, to the arch, and lodging the powder in one mass on the centre of its width. To do this with good effect, the shaft should be sunk where there will be the greatest resistance gained above and to the sides. As the arch gives so much more resistance than the materials with which it is loaded, the distance to the surface, therefore, should be twice, or three, or even four times more, at least, in those directions, than in that through the arch, in proportion to the nature of those materials.

In this way arches have been blown down with 45 pounds of powder, and after five or six hours of labor.

The shaft should be sunk on one side of the centre of the width of the bridge, and a little return made at the bottom to gain that situation for the powder, by which means there will be more solid resistance above, and a greater width of road left open during the operation.

In loading, the saucisson was brought up the shaft to within about 1 foot of the surface of the road, and then carried along a gutter or drain to the side of the bridge where it was to be lighted, whereby the road was entirely cleared, and a premature ex-

plosion from accident less likely to occur. The upper surface of the road was drained off as much as possible, to keep any wet from penetrating to the powder.

When there is no time to sink a shaft as deep as might be wished, as great resistance must be obtained as can be, by sinking as deep to the arch as there is time for, and increasing the effect by a loading of as much stone or other heavy materials from the parapet walls or elsewhere, as can be applied.

A bridge across the Carrion at Duenas was required to be mined in great haste, and it was found that the loading between the arches was of solid masonry: an opening was, therefore, made down to the crown of the arch, about 2 feet 6 inches only; 250 pounds of powder were lodged in rather a longitudinal direction along the width of the bridge, and a loading applied of heavy stones and rubbish, as high above the road of the bridge as could be without preventing carriages from passing: when fired, it made a gap across the bridge of 15 feet, which was about half its span.

The French declare that 100 pounds of powder laid on the crown of an arch, and without loading, would destroy it; but, in a strong built bridge, I should be sorry to apply so small a quantity.

As, on service, the time at command for this kind of operation is very uncertain, it is a common and good mode to commence preparing in two

places: one on the crown of the arch, and the other on the haunch; and then, if not allowed time sufficient to complete the latter and better mode, the powder can be applied on the crown of the arch, and exploded with or without a loading of rubbish, according to circumstances; and it is much better to do that than to lodge the powder in a shaft only partly sunk down towards the haunch, although it should be deeper.

In some cases where the bridge is very wide, and the operation can be carried on with nicety, it may be right to divide the powder into two mines across its width; but, in a rough operation, I would certainly never divide the powder; for, although it was said once that a hole was blown through the centre of a wide arch, and a passage left on each side, (which, however, I do not believe,) if it was so, certainly that same quantity of powder that gave so nice a shock, would not have injured the arch at all if divided.

I have seen an instance where about half of the width of a bridge was blown down by the French engineers,—a circumstance which probably arose from dividing the powder in this manner.

There can be no reason whatever for dividing the powder between the two sides of the arch: by doing so, a failure took place on the Corunna retreat; and if it succeeds, there can be little doubt but that one of the mines would have done as well. Wherever the powder is divided, the explosion of

the whole should be simultaneous; the arrangements require much precision, and the chances of failure are, of course, multiplied.

Where a bridge is narrow, there can be no occasion for sinking the shaft down to the arch much deeper than half the width of the bridge, as the want of resistance at the sides will render the additional vertical resistance superfluous. On one occasion, a failure occurred from a shaft being sunk down to a pier, with the intention of destroying two arches, but which, although great perpendicular resistance was gained, blew out at the sides, and left the two arches perfect.

When the effect of a mine can be secured to cut through the arch, the greater resistance that can be given even in that direction the better, as it will increase the effect over the whole width of the bridge.

As it generally happens on service that the mine cannot be laid according to nice calculation, after applying it in the best way which circumstances will allow, the effect must be gained by increasing the quantity of powder. Under the chance of different difficulties that might occur, it was customary, when practicable, to send two, three, and even four barrels of powder, of 90 pounds each, for the destruction of a bridge, although one would usually be sufficient.

When there was time, these mines were loaded with all the precautions commonly used: *viz.*, the

powder in a box, and the saucisson in an auget; and when to lay any time, the box and auget were pitched, and covered with straw, tarpaulin, &c., to preserve the ammunition dry. When pressed for time, and without the proper articles, the powder was lodged in the barrels it was brought in, or laid in a tarpaulin, or in bags; and the saucisson was laid without an auget, but with care that the stones or rubbish should not choke it. The mine was lighted by a piece of portfire tied into the end of the saucisson.

Saucisson is so very easily made and carried, and so advantageous, that, latterly, we never failed having it with us; in our first mines, indeed, for want of it, we cut off the ends of portfires diagonally, and tied them together to pieces of stick the length necessary for train; but such a contrivance is very bad, and owing to it, Lieutenant Davy was killed on Sir John Moore's retreat, the mine exploding the instant he lighted it, probably from the fire of the composition dropping down to the powder; for which reason the end portfire should be laid horizontally, and a little clay round it will give additional security.

A small hollow, round the powder in a mine, will increase its effect.

To destroy wooden bridges, powder was sometimes used and applied to the most important supports in the arch, according to its construction; but as there is no other resistance than the air,

the quantity of powder should be large: 90 pounds have blown down a strong wooden arch.

The common and best mode with a wooden bridge is to lay the planking bare, and to light a large fire upon it, over the piles forming the piers, which will then burn to the water's edge if let alone; but this will not do if the enemy cannot be kept from gaining possession of the bridge, for at least twelve hours after the fire is lighted.

COAST BATTERIES.[1]

The following paper is intended to advert only to the general principles which should be observed in the construction of coast batteries.

TOWERS.

The tower system originated in the Mediterranean, to afford protection against the inroads of Turks and Moors, by placing a few men in posts dispersed along the coast, where they could be secure against a sudden assault; from whence they could give the alarm, and signalize the population to collect and oppose incursions; and from the top of which they could perhaps serve a single gun or more to keep vessels at a distance.

One of these, a round tower, in Martello Bay in Corsica, having done very great damage to a

[1] This and the following paper are taken from the R. E. Professional Papers.

British line-of-battle ship and a frigate which opposed it by direct fire, gave a prestige in their favor, even for defence against European powers, that has been carried too far.

Towers may be usefully applied in detached positions, for one, two, or three guns, particularly where the pieces require to be much raised above the natural ground; and in water, or on small rocks or islands affording very little space, and not assailable except from boats.

In these latter situations, if of sufficiently substantial construction not to be breached by the fire of shipping, they can hardly be reduced until battered from the shore.

The necessary strength to resist being breached from afloat, may be obtained in various ways; in addition to direct thickness throughout, by constructing them circular, or, if quadrangular,

1. By bringing out the arches endways to the fronts liable to be battered, (in which case they should be carried through to the face of the escarp,) so as to form a revetment *en décharge.*

2. If there should be sufficient space, by covering the escarp, or even the lower part of it, by an outer embankment, or counterscarp and glacis; or making the lower part entirely solid, or of increased thickness.

As a ship's guns are but little above water, and cannot, particularly when opposed to other fire, be served continuously with the precision

necessary for breaching at any peculiar and narrow limit of elevation, the lower 15 or 20 feet of ground or building from the water level, will receive most of the shot, and that being covered, or made peculiarly strong, will give great power to the building to resist the shock of the broadsides of any shipping.

If this lower part be even all of it of masonry, and above ground, it can be given much increased solidity without losing the entire of its space, by leaving, in that part of its interior, openings comparatively small, such as are sufficient only for magazine and tank.

An enceinte, however, of detached towers, is faulty.

It causes too great a subdivision of the available forces, and is a most expensive mode of procuring an emplacement for guns, and the requisite accommodation and space for men and stores.

It is contrary to sound military principles to attempt to spread your forces along very extended lines of position or frontier; it is, in fact, to be weak everywhere, and, in lieu of the great principle of concentration, to apply them in such a manner, that only a small portion *can* be available at a given time.

Wherever the attack may be, a semblance of opposition is made, while the great aggregate force, has no power to co-operate, and remains

inactive. This principle will hold good along the coast, as well as in the interior.

Under the most favorable circumstances, only three or four towers are likely to be able to co-operate in opposing a landing, and being each of them without any self-protection, and garrisoned with 12 or 20 men only, would be carried in succession without difficulty, by a few hundred men landed for the purpose.

If it be said that it was intended that they should be supported by troops, that might or might not be the case; but if it should be, it is the troops who would make the effective resistance; and a few moveable field pieces with them would be more serviceable, far less expensive, and without the great inconvenience of the numerous equipments and garrisons, that would be all thrown away in the mass of distant towers not within the sphere of action.

Except to protect harbours, bays of limited extent, and other sheltered parts where landing may be particularly favorable, and as places of refuge, where occasional protection might be afforded to our trading vessels, the defence of the coasts should be by moveable and not permanent batteries.

In construction, every enclosed work, or even building, however small (including towers), meant for defence, should be *flanked*, either by its exterior form, by counterscarp galleries, by capon-

nières, or by machicoulis, to give it any chance of resisting a *coup de main.* The want of this precaution is a great defect in the ordinary round tower. If to be at all dispensed with, it is only in case of the tower being closely surrounded by water, so as not to afford footing for ladders.

A tower liable to be battered by guns on the land should be covered by a counterscarp, or outer screen of some sort; otherwise it will be breached with little trouble or risk.

Generally speaking, the square or rectangular tower has advantages over the round; the construction is more simple and economical, and the interior space more convenient to arrange.

The regulation towers of Napoleon, described in the *Professional Papers of the Royal Engineers,* vol. iii., afford useful information on this class of defence.

One for three guns, with one of its angles presented to the sea, will admit of a good lateral range for all three pieces in that direction, and be favorably placed for resisting the shot from a vessel.

In towers, and very small coast forts, the arrangements for accommodation need not be on the ample scale regulated for barracks, but assimilated to what is allowed in a man-of-war, where space requires to be economized. The magazine also may be constructed as in a ship, with rectangular cases for the ammunition; and

the space generally for officers and men, with the cooking ranges and stores, arranged as on board a ship, particular care being taken to ensure the building being free from damp, and thoroughly ventilated. These close quarters will be the less inconvenient to the persons in them, because their full occupation will only be in times of threatened attack, and will be subject to frequent reliefs.

POSITION OF BATTERIES AS REGARDS ELEVATION.

The most effective fire against ships would be obtained from guns but little above the level of the water; the shot and shells would then graze over its surface, and bound from it at low angles; but so placed, the pieces would be subject to the inconvenience of being most exposed to the fire from the ships, whether close or distant.

In proportion as batteries are elevated, they lose in the best effect of their own fire, but become far less exposed to suffer from that of ships.

There is also from elevated direct batteries, if close to the water, a certain space near them which they cannot command at all, and where vessels or boats would consequently be safe from them.

It is an object to strike out a medium between these conflicting advantages and disadvantages, by which the battery may be greatly secured from the fire from afloat, without losing very essentially in its own effects.

This may be done by placing the guns at not less than 50 feet above the level of the water (high tides). From that height the shot may be made to strike the water at a distance of 200 yards, and will ricochet well; at the same time the guns would be but little exposed to the fire from shipping, the loftiest guns on which do not exceed about 24 feet.

It has happened, it is said, and perhaps more than once, the shore being very bold, with deep water close to a battery, that its gunners have been driven from their pieces by the fire from a ship's tops.

This must have been a very gallant proceeding; but where circumstances admit of such an attempt, and the vessel is observed to be approaching, so as to afford an opportunity for it, a round or two of spherical case directed on the tops, at from 500 to 800 yards' distance, and of grape at from 200 to 400 yards, would effectually defeat it.

According to my view, the ordinary practice is to seek for more front cover in coast batteries than is judicious or necessary, considering that it is always at the sacrifice of some advantage.

This has been influenced by theoretical deductions and diagrams, showing the cover necessary to protect the gunners from the course that the enemy's shot *may* take, rather than from the practicable efficiency of actual service.

In devising protection against batteries on shore,

very great consideration must be given to this kind of nice calculation, because of the far greater advantages possessed by the gunners on land for making accurate practice than by those afloat.

The power and the weakness of the fire from shipping might be more duly valued in the construction of the defences.

A battery on a level or nearly so with the ship's guns, and especially if the vessel can approach near it, would be exposed to such an overwhelming mass of point-blank fire from its broadsides, as to require the most ample cover.

But when the guns in battery are raised so much as 50 feet or more above the water, the same degree of danger no longer exists; for it is not that the enemy's shot *may* not skim over the crest of the parapet, and strike an object between one foot six inches and two feet higher than the parapet (being the height of a man) for some distance in the rear, but the precision required in judging distances, regulating the accurate amount of elevation, &c., may be said to be unattainable afloat, and especially when opposed to other fire; so that, practically, the effective exposure on the battery would be trifling, and the service generally more forwarded by fewer precautions, and by providing the low carriage and parapet, with its advantages in other respects.

In proportion as the distances from the battery are increased will the exposure on its platform be

also increased *theoretically;* but *practically,* by the greater uncertainty of the fire, it will be reduced to a most remote chance of being productive of evil.

The advantage of having guns in action on a precipice, or on ground so steep as to catch the enemy's shot without their rebounding, even without any front cover, is well known, as there is but one small limit of altitude within which the opposing shot can take effect; whereas, when subject to the ricochet, the course that may be effective is greatly prolonged.

With reference to this question, the service of steamers against batteries requires especial notice.

It is considered that their power of selecting their own positions and distances, their greater steadiness when lying to, their guns of very heavy calibre on deck, unencumbered by port-holes, and with convenient carriages for good practice, added to the degree of skill now given to the naval gunners, will make them much more formidable against batteries than the sailing vessels of the old service; and that, consequently, greater precautions will now be required for the defences on the coast.

Although it would be wrong to despise so powerful an opponent, still, effectively, the steamers will not be so much to be dreaded as may at first view appear.

Two advantages they will decidedly possess:—

1. A superior power of selecting their positions; against which, consequently, the shore batteries must be as much as possible provided.

2. The great rapidity with which they may run over any given distance; thus, if the object was to pass a battery, a steamer would be hardly much more than ten minutes exposed to its fire; the best remedy for which would be by constructing the batteries, where practicable, rather in successive distances along the channel to be protected than in mass at one point, so that the vessel as she retires from the fire of one may be caught by that of another.

As regards, however, their direct power of contending with the batteries, it would be small.

They can *select* their distances, it is true, but they have no means of *judging* them, nor of correcting their practice by observing its effects; in both these particulars the gunners on shore would possess a decided advantage over any kind of ship.

Then, like all ships, the steamers are vulnerable everywhere, and indeed, much more so on account of their machinery, while very few shots will take effect on the battery.

Viewing the circumstances connected with the service of coast batteries in every light, I consider that, except in the solitary case of their

being liable to be opposed to the broadsides of powerful ships at short ranges and low levels, we should rather, in their construction, study the means of the greatest possible annoyance to the shipping, than any degree of self-protection that would impede their action.

In the ordinary matters of civil life, no prospective advantages will justify a want of precaution to prevent the loss of human life.

In war it is very different; success is the primary object to which hundreds and thousands of men's lives are, at the time, necessarily sacrificed.

So in engineering and protective works, and in the application of them, we are not solely to consider always what will abstractedly afford the most cover, but what will give most protection *consistent with the primary consideration* of the purpose for which the work was constructed; thus, by means of the banquette to a parapet, the soldier theoretically may be enabled to retire behind it to load, and mount it again only for the instant necessary to fire, but practically, when the work is stormed, he will never descend, but boldly stand up to the parapet throughout the period of assault, because, although more exposed, there is a much better chance, by so doing, of beating off his enemy.

By the same reasoning, in these coast batteries, if the best cover to be given to the gunners would impede the most efficient service of the guns for

opposing their enemy, it should be reduced until no longer attended with that inconvenience.

Where batteries are very much exposed to the most effective fire of ships, the greatest degree of cover must be given to the men and guns, on this very principle, because they would otherwise be silenced, and, consequently, not enabled to give their most efficient service; but when the superior degree of cover would hamper the service of the guns only to save a few casualties, it should be abandoned.

In military operations, as said before, the first aim is to obtain success; to save life is a secondary consideration, excepting so far as it may not impede the first, when, of course, it becomes an anxious and imperative duty.

We must not be deterred from this kind of reasoning by the outcry of its being a barbarous, cold-blooded calculation; for war, unfortunately, will admit of no other.

ON THE MANNING OF COAST BATTERIES.

It is impossible to expect that the extensive defences that could be judiciously applied, and would be even necessary in time of war, could be manned by the regular army and artillery; nor would it be right to lock up, in permanent dispersed positions, such numbers of a description of troops that are maintained at a great expense,

and adapted to the most effective *manœuvring* service.

The coast batteries should, therefore, be manned almost exclusively by local bodies organized for the purpose, who would habitually be engaged in their ordinary pursuits and duties, but always be ready to take their posts in times of need: their service being limited to a few simple operations in one confined position, the instruction necessary to make them very efficient might be readily given to them.

In the past French wars, the seafaring population of the coast were embodied into corps of "sea fencibles" for this purpose; to these might be added other people of the neighbourhood, and, still better, the coast guard, who are on the spot, and already under military discipline.

The dock-yard men at the great stations, also, might be made excellent gunners, to aid in the defence of the fortifications immediately connected with their establishments; a far better arrangement for them than the organization that has been attempted of battalions of infantry.

SHIPS *versus* BATTERIES.[1]

The precision attained of late years in naval gunnery, the success that attended the attacks on Algiers and Acre, and the force and speed of the

[1] From the R. E. Professional Papers, 1847.

large class of steam vessels, have given an impression of increased power acquired by ships of war for the attack of batteries on shore, and for passing them with impunity, requiring to be analyzed, and their real capability of effect provided against, as far as possible, in our own defences.

The disadvantages that ships labor under in contending with batteries are great.

1. Their exposure to a fire which they can only return very imperfectly during the act of taking up their position.

2. That they must always be subject to more or less movement, that will affect the precision of their fire.

3. The men serving the guns on board have not such good means of judging their distances.

4. The large proportion of shot and shells that may strike a battery without doing any essential injury, while hardly any can hit the vessel without being very destructive; under this item, it may be observed that the introduction of heavy shell guns will probably prove a more powerful acquisition to coast batteries, in opposing shipping, than that of steam vessels will, on the other side.

5. The susceptibility of total destruction by red hot shot, and incendiary means in general.

Notwithstanding these disadvantages, men-of-war possess very great power, which must be

watched and counteracted; one element of which is, that while the batteries are fixed and immovable, the ships can be taken from position to position, concentrated or dispersed in any degree required, so that each battery, if unsupported, must be capable of opposing the entire of the floating force at the disposition of the enemy.

The manner in which batteries may be subdued by vessels are :—

1. By landing and storming them at once.
2. By the power of heavy broadsides breaching their walls, and thus opening the battery.
3. By the same heavy fire silencing their guns.

These are the points, therefore, we have to guard against in preparing our defences.

I. No battery that is detached, and at a distance from support, should be armed or constructed, without being made self-defensible.

According to the importance of the work and its position, will be the degree of strength to be given to it, from that of a fort, capable of resisting cannon, and requiring regular siege approaches for its reduction, to a musketry enclosure, to resist a *coup de main* without guns.

This latter degree of strength can, under most circumstances, be obtained without much extra expense, by simply adapting the barrack and other necessary buildings and enclosures to defence; the following points being worthy of notice :—

1. That every part of the work, including the faces of the battery, be flanked, if only by two or three loopholes.

2. That these flanks be not exposed to the fire of the ships directed upon the battery.

3. That there be, under the flanking fire, some impeding obstacle to the approach, either ditch, palisading, or wall.

4. That the work, if possible, be secured against the effect of a few light guns, that might be landed for the purpose of aiding the assault.

If the *flanking points* of the enclosure be sufficiently strong, or covered, to prevent *their* being breached by these guns, the work ought to be maintained even although the intervening barrack or wall be knocked down, provided there remains an obstacle to the storming party exposed to that flanking fire.

Where a battery is under rising ground within musketry distance, the enclosure of its gorge must be of sufficient height to cover the gunners from a reverse fire from that ground, even although it may occasion the inconvenience of its being seen from the front, above the battery, by which it may arrest the flight of shells, and cause them to explode or drop within the work; this latter being the lesser evil of the two, and by ordinary precautions, not likely much to prejudice the service of the guns in battery.

II. If the escarp, or supporting wall of a battery,

is liable to be breached from shipping, it must be owing to the wall being very unsubstantial, and consequently a palpable defect requiring a rebuilding, or cover, or some additional defence; or it may be owing to its being exposed, from top to bottom, to the fire of a powerful ship, which may bear the whole weight of its broadside upon it, from a short distance and for a long period.

These are cases that can seldom occur or be without a practical remedy. The whole of the ammunition of a line-of-battle ship (being opposed and firing rapidly) would hardly breach a good wall at any distance exceeding 300 yards.

III. The real power of an ordinary man-of-war consists in the mass and rapidity of its fire from heavy ordnance.

The broadside of a line-of-battle ship, consisting of forty or fifty 32 and 68-pounders, must necessarily produce a tremendous effect, and, if brought into close action, could hardly be resisted from the shore, at the same level, within the same space; the opposing power must therefore be differently arranged.

The best disposition for guns against shipping is to *disperse* them very much; and to place them in flanking situations, covered from the direct front.

In either case, the fire from the batteries will be deliberate and unopposed, and consequently perfectly effective.

After the first round or broadside, the fire of a ship, when opposed to other fire, must be quite wild, and all its effect lost except against what is directly opposite at point-blank elevation.

The action of steamers against batteries will be somewhat different.

Many of them have guns of the largest calibre, that traverse on the deck, and are fired with much precision, and they possess a power of locomotion that will enable them to take up rapidly any position where there is sufficient water.

Presenting also comparatively small objects exposed to the opposing fire, it may be expected that they will be able, singly or in numbers, to harass a battery exceedingly, if not do more.

But that will hardly be the case in any degree to be of serious consequence; they will be equally subject to all the relative disadvantages above enumerated as against shipping in general, with the addition of a machinery on which their most advantageous movements depend, and which is much more susceptible of vital injury from being struck by a shot than the multiplied masts, sails, and rigging of a sailing ship.

Improvements have been made to remedy this latter inconvenience, by placing the machinery very low, by the substitution of a screw under water for the paddle wheels, and by using the coals on the sides as shot proof screens; but these remedies are only partial.

At long ranges, the shot may drop on the deck, and so reach the machinery.

With a view to obtain the greatest service from sea batteries, the number of guns need not be restricted to the number of gunners or men that can be allotted to their service, but on many occasions might be very advantageously multiplied.

If the front that is to be protected is considerable, such as on a small island or peninsula, it may be useful to mount more guns (having different or even the same bearings) than the garrison shall be able to work continuously; by which means, the whole being loaded in the first instance, a first round may be obtained from all, and subsequently those only worked that can be brought to bear to the greatest advantage against the shipping, and that are found to be least exposed.

At intervals, there may be opportunities of loading the whole again.

If the work is not made larger expressly for the object, the only additional expenditure for this system will be that of the additional guns placed in battery, which will not be much.

Batteries whose chief importance is for a specific object, such as to protect the entrance of a harbour, or to prevent a landing on the shore within its range, should be so arranged, that the fire of a certain number of guns *destined to that object*, may be reserved for the special occasion, and not thrown

away on others of less consequence, the guns and gunners being covered and concealed from every other direction.

The success obtained against Algiers and Acre is attributable to gross mismanagement and imbecility on the part of the garrisons, and certainly could not be expected against English or French gunners.

At Algiers the *Queen Charlotte* laid for upwards of six hours within 60 yards of the main battery, silencing most effectually what was immediately opposed to it, but exposed within a moderate range to the rest of the place; had a single, unopposed heavy shell gun, or a gun served with red-hot shot, been brought to bear steadily on that magnificent ship, *which might easily have been the case*, she would have been destroyed in half the time.

Nor could she have taken up that destructive position at all, had she been opposed in advancing to it; but not a shot was fired till she took her station, and opened with her broadside upon the pier, on which were hundreds of people at the time, looking on without suspicion as to what was going to happen.

At Acre, also, the ships were allowed to take up their positions within 600 or 700 yards of the batteries unmolested, thus escaping a most critical period of danger.

There were no traverses to protect the very long

lines from enfilade, no skill shown in the positions or in procuring cover for the guns, and far from any spirit exhibited in their service; had the garrison been British or French, and with a very few days for previous preparation, Acre would never have been so taken; but, on the contrary, with the means and extent of that place, there cannot be a doubt but that the fleet would have suffered dreadfully had it persevered in the contest for the time it did.

Considering the amount of ammunition expended, the damage done to the walls, the guns, and the garrison, exposed as they were without ordinary precaution, was comparatively very small; the explosion of a large magazine must equally be attributed to want of arrangement. It must be considered highly disgraceful to the defenders of works of the extent of Algiers and Acre, that large ships should be able to lay within a few hundred yards of them, *for several hours*, with so little injury.

Nor was there anything in the attacks of St. John de Ulloa and Mogador by the French squadrons, although successful, to prove in any greater degree a real power in ships to contend with forts *properly defended.*

In noticing these cases, where ships have reduced land defences, we must not forget that the instances are rare, while they are innumerable where batteries have made themselves respected by ships, from the

original Martello tower in Corsica, which, with a single 24-pounder, or two 18-pounders, occasioned so much loss to a line-of-battle ship and frigate.

Among the inconveniences apprehended to coast batteries of ordinary construction, are the openings of embrasures in masonry, by which shot that would otherwise pass them without injury, or strike the parapets direct, are deflected on to the gun and into the battery.

The opening of the embrasure also confines the circuit of its range.

The form of construction of embrasures may be modified, so as to correct, in a great measure, the defect above alluded to.

The openings for guns in casemates are still more hurtful for drawing shot and shells into them than the embrasures of open batteries, and the evil is not so readily alleviated; but still the necessity for them, under many circumstances, will more than counterbalance the inconvenience.

1. For a line on which vessels must, from the nature of the channel, approach end on, so as to be raked, it would be exceedingly desirable to provide tier upon tier of guns on so advantageous a position.

2. The site for the work may be so small, (a rock, for instance,) that it may be far more advantageous to multiply the guns by a casemated tier (the only means of doing so) than to consider the above-mentioned inconvenience.

3. The battery may be liable to be powerfully enfiladed; and, if by a combined attack from the land also, perhaps plunged into from a height which may require its being covered overhead.

The casemates should be entirely open to the rear, if possible, or they may perhaps be as much incommodated by the smoke as the decks of a man-of-war.

Among the means of *offence*, besides large shells, the effect of which will be greatly in favor of the batteries, are red hot shot, which are entirely so.

They will admit of the guns being deliberately loaded and pointed without risk, and fired to considerable ranges, with bounds or ricochets on the water, without losing the necessary heat to set timber on fire.

Shot can be heated in from three-quarters of an hour to an hour and a quarter, from first lighting the fire, and from that time a continuous supply obtained; and, by a recent improvement, a cheap moveable furnace is supplied as an article of store, and can be applied at any time to a battery.

Extreme ranges from the heavy ordnance may be reckoned at about 3,000 yards; the efficient ranges commence from about 1,800 yards.[1]

[1] This was written long before the introduction of rifled cannon.—EDITOR.

The former may be used against vessels at anchor, or manœuvring in any other way than approaching the battery; but, against steamers approaching rapidly, the greatest number of chances of hitting them will be by reserving the fire till the first shot shall be within effective range; in receding from the battery, the fire may be continued to the most extreme range; thus, *passing* a battery, the exposure will be from 1,800 yards in advancing, to 3,000 yards in receding.

The greatest difficulty to be encountered by the artillery on shore against shipping, consists in firing with good effect at vessels when in rapid motion; this will be particularly experienced against steamers, the progress of which class does not depend in any great degree, either in direction or in speed, on wind or tide.

If the vessel is approaching the battery end on, or nearly so, the firing at her will be comparatively easy; the line of direction will alter but little, and the elevation will be almost the only matter to be attended to.

The time for which she will be exposed to the fire from any one battery, will depend upon her speed; with steamers it can always be very rapid. Supposing them to be, therefore, of considerable power, and reckoning on a speed of 12 miles per hour; to pass a battery at a close range, they would be exposed just ten minutes from the

effective range (assuming it to be a mile) on the approach, and for three or four minutes more to the longer ranges in receding.

This period of time will be proportionally reduced from the extreme case of having to pass close to the battery to that of passing it one mile distant, when they will only be exposed for a few seconds.

On this consideration, therefore, of the rapidity with which they may be passed, batteries to impede an enemy's ships from making their way up a river or estuary should not be placed opposite one another, but rather in succession at 4,000 or 5,000 yards' distance, so that, as a steamer passed out of the range of one, she might just enter upon that of the next.

If a steamer is passing at right angles across the line of fire, it will be difficult to hit her.

At 12 miles an hour she will run the distance of her own length in from about 8½ to 15 seconds of time, calculating their lengths to vary from 150 to 260 feet.

This is so short a time that, unless at a very close range, the act of firing when her bow is on the line of fire would probably be too late, and, therefore, no fixed guide is available, but some point in advance must be judged according to the distance and speed of the vessel and time of flight of the shot; the practice, therefore, must be very precarious, and will

be the more difficult to study, as it cannot be actually tried, except in real action against an enemy.

A great deal of instruction, however, might be given by entering into the necessary calculations, and drawing up in a tabular view, and by diagrams, directions for regulating the fire under such circumstances; and the artillerymen might be instructed and practised in judging distances, by arranging marks on the water, and still better, by watching and timing steamers and other vessels in passing.

There will be a difficulty in regulating the fire from a traversing platform at a passing object, which does not appear to have been yet provided for, which is, the want of power of observing the line of fire at the moment of pulling the trigger, so that it shall be at the precise instant required.

IRON-CASED SHIPS.

In discussing the relative powers of ships and floating batteries against shore defences, it is not uncommon to advert to the increased power of the vessels, obtained by covering their sides with sheet iron, which renders them partially shot proof; and to anticipate further progress in these means of resistance against an enemy's fire. All this is quite just; but it must be observed that, up to the present time, the protection is somewhat imperfect, that the ships are not capable of resisting the effect of pieces of the heaviest calibre, with which the shore batteries are now being armed; that, although

they can stand against occasional shots of a smaller calibre, a heavy fire on them from the same would no doubt eventually penetrate; and, above all, that the decks, which, under many circumstances of exposure to the fire of elevated batteries, or of great elevation given to guns, will be liable to be struck by shot and shells, are totally unprotected. Even with the imperfect protection that these vessels have obtained, they are as yet scarcely sea worthy; and, on that account, are far better adapted to *defensive* operations in smooth waters, and to co-operate with the shore batteries than to act against them. It is quite reasonable to anticipate further improvements in this class of vessel; but it is not to be supposed that progress will not, at the same time, be made in the improvement of the shore batteries, by the application to them also of iron covering at their vulnerable points, and of pieces of greater power than those at present used, such as are already in progress of experiment, and by which they may be expected fully to retain their relative advantages.

BOOMS.

Propositions are frequently made for the application of booms to the protection of narrow entrances to harbours and rivers, but they are subject to so many difficulties and objections, that it is in very rare cases that they can be considered available.

The inconveniences attending them are so great,

that for very many years we have few, if any, records of their having been employed.

1st. The great labor and expense of their preparation, and working, on the chance of a result so precarious as above described.

2nd. The obstacle they present to friendly as well as to the enemy's vessels.

Even in the old times they were seldom found effective, but were usually carried away by the first ship that boldly attempted to force them; indeed, when we consider the enormous pressure of heavy ships in motion,—the impression they have been known to make, even on very substantial masonry wharf walls, with only slight way on them,—it is easy to conceive the immense power of strain required to bring them up.

If employed, however, at all, they are best placed in a direction not perpendicular, but inclined to the course through the channel, by which the ship would have much less power to force them, while, in case of failing, she would inevitably be glanced off to the shore.

Under the head of *Booms*, in the *Engineer's Aide Mémoire*, it may be seen how it is attempted, *on paper*, to remedy these inconveniences, by having a double, or even triple boom; a part across the best channel removable, so as to be opened or closed as required; and other contrivances, so easy to be added by a stroke of the pen, but so difficult in practice.

These, like very many other plausible systems that are found in books of military engineering, have never been employed, nor probably ever would be, in actual warfare.

It is on the whole, therefore, in but few instances that they can be applied, such as under some peculiar circumstance, for entrances extremely narrow, to protect floating or other bridges liable to injury, or where they could only be assailed by boats.

It is probable that a more powerful and less inconvenient substitute might be found in submerged mines, not as employed by the Russians in the late war, with small charges of 8 or 10 lbs.; but containing charges of powder of at least 100 lbs. Such charges ignited by contact or fired from the shore by galvanic agency, would form powerful means of defence in narrow passages.

ON THE EMPLOYMENT OF ARTILLERY IN ACTION.[1]

In any action, the great result is to be produced by the infantry, seconded by the cavalry. The artillery is an auxiliary whose duty it is to break and reduce the effect of those two arms, particularly of the infantry.

When artillery is led to oppose the enemy's artillery, it is, except in peculiar cases, diverted from

[1] Written in 1854, during the operations in the Crimea.—EDITOR.

its proper course, and from where it can render the greatest service.

In attacking a position, the artillery seeks to make such an impression upon the enemy's troops as may shake them, and prevent their being drawn up on the most favorable ground; and they will also endeavour to reduce the fire of the artillery in position, that would bear most heavily on the columns of attack; or if the defensive troops are not exposed to view, they will have to confine their efforts to opposing the guns, and to cover the advance.

The object of the artillery of the force that receives the attack, should be exclusively to damage the advancing troops, neglecting altogether the enemy's artillery;—the more, however, it can be covered or concealed from the fire of that artillery, without sacrificing the best position for breaking the columns, always its primary object, the better.

The position taken up by an army to wait for an attack is usually elevated, commanding and overlooking the front, and presenting a waving line of salient ridges or knolls, with re-entering sweeps or valleys. These may be adjusted to act as so many fronts of fortification; the projections having the effect of bastions, while the retired intervals may be considered the curtains; the parts corresponding to the flanks presenting clearly the best sites for the guns.

OUTPOSTS IN FRONT OF AN ENEMY.[1]

It is of great advantage to an army in the field, to push its advanced posts as far forward as it can with safety, in order to cover as much of the country and its resources as possible, to have longer and more precise warning of any movement of the enemy, and to impede his reconnoissances and proceedings generally.

It is of still more importance to restrict the enemy to the narrowest limits.

Under ordinary circumstances, midway between the respective forces may be considered a reasonable line of demarkation that each ought to insist upon; but several circumstances may give a superior power to one side.

1. The opposing armies may be very unequal in force, or one may have gained a marked ascendency over the other; in which case, the superior will be able to press the inferior into smaller limits.

2. One may hold some peculiarly strong, defensible, detached post or batteries in a salient position, that may give him a command over the neighbouring ground; in which case, the line of demarkation will be midway between those posts and the position of the other army.

[1] Written in 1854, during the operations in the Crimea. It was circulated by Lord Raglan amongst the general officers commanding divisions.—EDITOR.

3. There may be a river not fordable, or other essential obstacle between the two, which will naturally form the line of demarkation, although nearer to one than the other.

Subject to those sort of contingencies, it is very essential that no encroachment should be allowed; the greatest efforts, in particular, should be made to prevent an enemy from holding posts, or even temporary possession of, the foot of the heights on which parts of an army are posted; distant fire of artillery is not sufficient to justify submitting to this disadvantage; and if the enemy's circumstances are such as really to enable him to enforce it, the army which is subject to it must be in a very insecure position.

There is a great deal of brag in the matter of keeping possession of a greater extent of ground than a party is entitled to; old campaigners know the value of it, and will take all the liberties that they are allowed, retiring, however, as soon as they are opposed; and this appears to be a leading feature in Cossack warfare. The great point is to determine upon what is your right, and what you can enforce, and then to persevere in obtaining it.

An enemy's batteries, particularly if distant, ought not to prevent your driving away an enemy's post that are advanced unreasonably near to your position; the operation will be quick, and those engaged in it will obtain the best cover they can

in front; or if, from very peculiar circumstances, there be no cover, they must return, and renew the attack as often as necessary; for it will be a very unusual case where the ultimate advantage in these contests will not be on your side.

RECONNOITRING.

Reconnoitring and the sketching of ground for military operations must be done with as much accuracy as the time, situation, and instruments will allow.

The instruments commonly employed are the theodolite, small sextant, and pocket compass. The theodolite is the most accurate, but less portable, and takes up most time, while the compass employs least time, but is most inaccurate. On most occasions, I think I should prefer the sextant; it is as portable as the compass, takes but little more time, and is considerably more accurate: but an instrument that would lay down the angle on paper as well as measure it, would be preferable to either, as it would save the time occupied in reading the angle, and substitute a single operation for what is now a double one.

With any such instrument, and a chain or tape to measure distances, the ground should be taken up upon the same principles as land surveying, by means of triangles. When you have no instruments, or cannot use them from want of time, or

too near proximity to the enemy, the ground must be taken up by the eye, taking care to be as accurate as possible, by taking the relative situations of objects as they are in a line, or otherwise, and trusting to your own or horse's pace for distances. For this purpose, a good watch becomes an indispensable part of a staff-officer's equipment.

In reconnoitring an enemy's fortress, it is very necessary to have a good telescope, in order to distinguish the different works from one another, which are very often confounded.

The capital of a work may be found by observing when the sun shines on one side of it, and the other is shaded.

The relative situations of the different works is of more importance than the particular figure of each.

The environs should be examined, to determine the quantity of materials they will furnish for a siege, as well as wood for gabions, fascines, &c.

N.B. Any sketch of ground, however roughly executed, is of service to a general, provided he knows its relative accuracy, and the amount of reliance which may be placed upon it.

SPANISH ALBARDA, OR PACK SADDLE.

A ready mode of constructing a good pack saddle may frequently be an object of great utility in the field; the following description, from

memory, of the principle on which they are made in Spain, (the easiest of construction I ever saw,) may, perhaps, on some occasions, be of service.

Two bundles, about four-inches diameter each, of long straw are carefully selected, without a crack across any individual straw, and having the heads cut off;[1] each of these is sewn up in a flattish case of coarse linen, its length being the measure from the withers of the animal to a little behind the hip bones. The two are united at each end by a flat band, padded in a very slight degree.

The only other article previously prepared is a case of coarse sacking, in form of a large double pad, stuffed with straw, and united in the middle; this will be shorter than the former, so as to lay well between the shoulders and the hips, and cover the flanks.

The method of applying this pack saddle is thus:—

A piece of linen is first laid, quite smooth, and without any dirt or roughness on it, over the back and sides of the mule; (the Spaniards object very judiciously to blankets next the skin, on account of the irritating heat they create;) the saddle (*i.e.*

[1] Great care must be always taken of this part of the saddle, as, if it is bent so as to crack the straws, it will be spoiled; when taken off, it is usually doubled together longitudinally, and tied up in the large pad described above, with all the other parts. If strips of whalebone were applied along the upper sides of this pad, and stuffed as saddles are in England, it is probable that it would answer as well or better than the straw, and not be liable to break.

the long narrow pads) is then placed along the ridge of the back;[1] after which, any blankets or other cloths there may be, and then the stuffed pack; the whole is very firmly strapped on by a surcingle with strap and buckle.

It is then ready for the load which is thus put on it.

A long rope is doubled near the middle, and laid across the pack saddle, so that the doubled end shall hang on one side, about even with its lower end; the two principal packages (if possible of nearly equal weight and dimensions) are laid one on each side, and rather high up; the rope having been spread out to take good hold of the packages, the long ends are passed from under the package on that side over and round the other, and then tied to each side of the double end; they thus cross, and leave a hollow over the back-bone. The packages, in this operation, (which is done by a man on each side,) are held, and tied rather higher than it is intended they should permanently rest, and then pressed down by the two men pulling them downwards together. Any other packages are then placed at the top; but they should bear a small proportion in point of weight or bulk with the side ones, or the load will never

[1] The object of these long narrow pads is to take the weight and friction off the back-bone of the animal; being connected at either end only, they act the part of a saddle-tree—each pad lying on one side of the spine.

balance well on the road. Round the whole a long rope is passed, having a girth on that part which goes under the belly of the animal. A small curved stick takes the loose end of the rope, and being passed under that part that has gone round the load, is twisted round and round till very tight, and then fixed by hooking it on to the package.

A load may be applied on a common English riding saddle by the same mode of fastening, and travel well; but the bearing on the back of the animal being small, will create fatigue.

The main point in applying loads on an animal's back is to avoid friction or weight on the backbone; then to let it bear over as great a surface of the back as possible; and lastly, to prevent corners or points bearing on any part of the animal's back or side.

DEFENCE OF LARGE TOWNS AGAINST POPULAR INSURRECTIONS.[1]

When we look back on the events that have taken place on the Continent during late years, we are struck by the circumstance of awful revolutions rapidly overturning thrones and old established governments, brought about almost entirely, it would appear, by the success of insurrectionists in the capital.

Recurring to the accounts of the proceedings at Paris, Berlin, and Vienna, we find every

[1] Written in 1848.

reason to believe, that the large forces of regular troops at each of those places, were loyal to their sovereigns and government for at least some days, and were only carried away by the current of the popular feeling after their first unsuccessful and apparently hopeless efforts, and the consequent temporizing and yielding of the authorities to the pressure.

It is a military question of much interest to analyze the cause of such a result: why the advantages of discipline and organization should be so completely paralyzed, and whether the success of these insurrectionary movements is precisely due to their own power, or if they might not have been counteracted if other principles had been adopted for opposing them.

In an enemy's country, the case is much simplified; a town so occupied is all inimical, and in a desperate state of opposition, consequently, in the attack, there is no respect to person or property. If the houses are combustible, a ready means of subduing the place is within reach; and if not, it is forced in different directions by siege operations, as practised by the French at Saragossa.

On occasion of internal dissensions and insurrectionary movements, the case is different. The efforts of the troops, and of the well-disposed citizens, may be greatly impeded by the difficulty of distinguishing between friend and foe, or the premises and property with which it may be justifiable to interfere.

This, and the very natural and proper anxiety to avoid bloodshed and injury to their own countrymen, frequently leads to a system of temporizing with the circumstances; and this indication of timidity and weakness gives such confidence to the rebels as enables them, perhaps with comparatively insignificant numbers at the commencement, to gain in moral effect as the others lose. By degrees, the troops themselves imagine that there is a declared power manifested that is not to be opposed; and the timid and wavering being led to join the insurrectionists, they attain a complete ascendency, which would have been effectually prevented by the exertion of more firmness and system in the first instance.

The most arduous and difficult task for a soldier is when he is called upon to oppose tumults and disturbances in which his countrymen are engaged.

It is difficult for him, or even for his commanding officer, to know what is the extent of evil, provocation, or injury, that will justify him in acting with vigour; and this feeling is increased by finding women and children mixed up with his opponents, till at length he becomes surrounded and overcome by a mass which he could readily have subdued, if he had been allowed to act at the commencement; or, taking the other alternative, by thus temporizing in the first instance, the movement is allowed to gain a great head, the troops in force are at last obliged to

act with determination, and a vast number of lives are lost, that would have been spared by a more early exertion of energy.

The best institutions of any country become endangered by such a state of things; but a remedy may generally be found in a more systematic manner of proceeding with the suppression of such movements.

All large towns are liable to danger from internal commotions. They contain enormous populations, of which many thousands may be out of work, suffering, and discontented; and there are always to be found in them numerous political enthusiasts, who are ready for the most violent attacks on any established form of government.

These spring at once into activity on occasions of excitement, ready for any act of violence against the state, accompanied with the usual circumstances of indiscriminate plunder and destruction.

Under a constitutional form of government, the laws admit of these risings and the preparations for them gaining a great head before they can be resisted; while the government has no sufficiently numerous body of troops for the repression of any extensive movement.

In such emergencies, therefore, the public safety must be dependent on the feelings of the

class which, by numbers and property, have the greatest stake in the country; and who, it is presumed, would not be inclined to allow changes, even if they should think them desirable or necessary, to be enforced by violence, attended as it must be by great social evils.

The enrolling of the civil mass, on whom eventually the power of repression must depend, takes under most favorable circumstances some little consideration and time; and would require more, in proportion as many of these natural guardians of the public peace may have imbibed sentiments in common with those on which the popular demonstration is founded; and even when enrolled, they are greatly in want of any combined system of action, in which respect, indeed, they would even be inferior to the rioters.

Each body of "special constables" attending exclusively to its own locality, as usually regulated, is weak everywhere against congregated masses; but they may be employed with great advantage to perform the ordinary duty of the police, and thus render the regular police force available to be employed, *en masse*, for great emergencies. Where the special constables are in great numbers, a selection of volunteers from them might be placed at the disposition of the police officers, for combined action with that body, with which they would form a valuable supplementary force.

It would, however, be very unadvisable to give even the best order of citizens any permanent organization, which would constitute a species of national guard. Such a force, however plausible the system may be theoretically, is found practically to operate in effecting sudden changes, on temporary popular delusions.

The most difficult case with which a constitutional government will have to deal, will be when these popular tumults have the plausible pretext of supporting measures which a large number of the more influential classes may be endeavouring to force upon a reluctant government and parliament.

In such cases every power and effort of the government may be needed to prevent excesses that might effect great and permanent injury to the country.

When a capital is threatened with violent popular commotions, the first step will be to make every possible provision for the security of the principal government offices and public establishments. But, notwithstanding that all these buildings may be made very strong for self-defence, yet many of them will be situated in the heart of the town, and probably all of them greatly separated from one another. Under these circumstances, if the proceedings of the rioters were conducted with any skill or combination, their plan would be, not to attempt to force them by a direct attack, but, in addition to

every annoyance to which they could subject them from the neighbouring houses, they would barricade the streets, and occupy the houses commanding the approaches to them, so as to prevent the defenders from receiving any support, or making their escape.

In this way our troops were subdued at Buenos Ayres; they obtained possession of some strong buildings as they were directed, but from which they could neither extricate themselves, nor could they obtain support, owing to the occupation of houses by the enemy along the approaches.

Great consideration must, therefore, be given to the means of establishing and maintaining a perfectly secure communication from the reserves outside the town to these several posts.

In most large towns there are to be found certain communications which command its intercourse with the country and its various parts. When a town is divided by a river, such as London, Dublin, or Paris, decidedly the most important internal line to hold is the river and quays, by which means not only a ready communication is maintained between the principal public establishments, but the rebels are divided into two, which tends greatly to their discouragement and suppression.

Parks and other open spaces afford valuable lines of communication in towns. Thus, in London, the parks form, in connection with the river, a valuable

strategical line, and, by taking advantage of this circumstance, nearly all the great public establishments could be combined into one system of mutual and concentrated support.

A command of the bridges would of course be necessary for the continued maintenance of this line, and is, in other respects, most desirable as an interruption to any combined action on the part of the insurrectionists on the two sides of the river.

The parks would be occupied by a general reserve force of infantry, cavalry, and artillery. These troops would be employed not only to support powerfully any points that might be threatened or attacked, but could debouch from any part of the circuit occupied by them, in order to attack the rioters in front or flank.

By the occupation, also, of Whitehall and Gwydyr House, this position might be connected with the Thames; and, by this means, an internal line of communication, extending from the Tower to Kensington Palace, and embracing in its circuit nearly every public establishment, is securely established, and could be maintained without much difficulty.

It is not intended by the above to lay down rules for the protection of London against popular insurrections, but to illustrate by a familiar instance, the principles upon which all large

towns must be defended upon such occasions. The question is one which, viewed abstractedly, is of considerable military interest, *viz.*, to determine how, when the population of a large town has risen up into insurrection, to apply the necessary means for restoring tranquillity upon sound military principles, and with the least effusion of blood.

It may also be remarked that some revolutions, involving the fate of nations, appear to have been successful, in consequence of due consideration not having been given to such preparations as are proposed.

ATTACK OF BARRICADES.

When disturbances are to be quelled in a town, cavalry, artillery, and infantry can act with full effect, and with every advantage of organization, so long as the rioters occupy the open streets.

If barricades are constructed across them, the cavalry become unserviceable; the infantry, however, have still full force, for one side of the barricade is as good as the other, and the infantry can cross any of them without difficulty.

But when, in addition to the street barricades, the armed populace barricade and occupy the houses, fire from them, and throw down missiles on the troops, the columns of the infantry also become helpless and paralyzed; after losing many

men, they have usually under such circumstances been repulsed: a discomfiture arising more from want of system and of due preparation for opposing such a defence, than from the inherent power of the insurgents.

Should the operation of cavalry or infantry be impeded in the manner above described, they should be respectively withdrawn from the direct attack, care being taken that this measure should not give the impression of *defeat*, for which purpose the minds of the soldiers may be prepared by instructions to the officers that such would be the course of proceeding.

When it is found that insurgents have had recourse to the most determined means of resistance, by occupying the interior of houses in support of barricades, the mode of attack must be adapted to the circumstances but still ought not to be difficult.

The operation should, however, be conducted with due deliberation, nor would any advantage be lost by a moderate pause.

It will be readily ascertained what part or parts of the town are so occupied as to render the movement of the troops through the open streets unadvisable.

An endeavour should be made to isolate those portions by detachments of troops posted at all the approaches to them that remain available.

This, of itself, would throw the rioters into a most uncomfortable and false position; they would find themselves shut up without any internal organization to enable them to act to any useful purpose, or to make any combined effort for release; or, indeed, if they could do so, it would have all the effect of an escape instead of a victory.

Nor would it be necessary, under such circumstances, that these detachments should be at all large, numbers of them being supported by some general strong reserves, as near as may be, out of fire, and ready to act defensively or offensively.

Active measures might, at the same time, be carried on against any portions of the houses that it may be considered advisable to force, for the purpose of confining the resistance within narrower limits, or for subduing it at once altogether. These should be conducted on engineering principles, and by the engineers and sappers, where they are available.

Although to troops in the streets, unprepared for such an operation, the attack of a mass of houses in towns is formidable, and almost impracticable, it will not present the same difficulty to the engineer.

One great defect for defence in a house or street is its want of a flanking fire — although every

part may obtain a support from the opposite houses in the same street; if therefore only one side of the street is occupied, individuals or parties moving close along that side are in security, except from the chance missiles that may be blindly thrown down from the windows.

Nothing of that kind could prevent two or three sappers, under cover of a little fire on the windows, from passing up, and breaking or blowing open the doors, by which means the troops being admitted, possession would soon be obtained of the entire building.

When however, from any peculiarity of the building itself, or of others contiguous, or from the circumstances of both sides of the street being occupied in force, such a mode of proceeding might be too hazardous, the sappers should make an entrance into the nearest accessible house in the same block of buildings, and supported by detachments of the line, work their way through the partition walls from one house to another, or by the roofs, cellars, or back premises, where the defenders will be unprepared to oppose them, or if they made the attempt, would not have the same advantages as in front;—the advance of the sappers might, if practicable, be covered by small parties keeping up a fire on the windows from the walls of the back yards, or from the rears of the opposite houses.

To carry on such approaches the sappers should be provided with an assortment of implements suitable to the nature of the buildings of the locality, to consist of crowbars, sledge hammers, short ladders, bags of gunpowder of the requisite weight, &c.

These operations should be directed by the shortest lines, that being occupied and secured, will cut off one party of the rebels from another; nothing would affect their confidence so much as such an operation.

When any particularly important hold or strong building, occupied in force, is reached, which it would be difficult to attack by the proceedings in detail, as above described, a considerable quantity of powder may be lodged against its walls in an adjoining house (which must be sacrificed for the occasion); and here it will be more particularly desirable to cover such a deposit of powder with bags filled with earth, &c., which will tend greatly to increase the effect in the desired direction. The result of such an explosion must naturally be most effective.

Although it is assumed that the engineers and sappers alone can overcome this kind of resistance with success, wherever artillery, particularly if as heavy as 18-pounders, and 8-inch howitzers, can be brought to bear on the buildings supporting the barricades, (which is far better than on the bar-

ricades themselves,) without exposing the gunners to a destructive musketry fire, it will greatly accelerate and render easier the proceedings, and probably occasion less loss to the troops. Thus, should the building be entirely isolated, with an open space around it, a gun or two, or even some powerful rockets, brought up against it, would probably soon effect an opening.

The greater the force of efficient sappers that can be employed the better. The French at Saragossa had a thousand sappers, who performed almost every part of the operations within the city, by which they were greatly accelerated, and effected with much less loss.

In these desultory operations in the defiles of streets and houses, the troops should not be in heavy columns, but in small detachments well supported; and by thus acting in order, and with system, the effect will be the more certain, as a popular movement is necessarily without subordination or unity of action, and peculiarly subject to panics at any proceeding differing from what had been anticipated, and that would turn all their defensive preparations.

The very prolonged defence of Saragossa in 1808, and the difficulties experienced in its attack, may, perhaps, be considered as a proof, that the power of resistance that may be made in a town, against the most systematic and ably conducted attacks, is

greater than here assumed ;—but it must be recollected, that Saragossa, in addition to an enthusiastic population, was occupied by *an army* of regular soldiers, which, though so far inferior in organization as to be unable to cope in the field with their enemy, had quite sufficient for the purpose of the most formidable contest among stone walls.

It is not therefore meant to be denied, that in such cases, or generally, where there is time to prepare a defence, on principle, and under due united authority, and well regulated arrangements, important results may not be obtained by a defence of streets and houses ;—but only that the sudden attempts by a disorganized population, however enthusiastic in the cause, have not the power against a regular military force that seems to be now generally supposed, and that the threat of a recourse to "*the barricades*" creates more impression than it deserves.

It has been assumed in this paper that the operation is entirely in the hands of the military, under full authority to use every means in the power of the commanding officer to subdue his opponents ; and that he will pursue the more direct and rapid, or the more methodical course, as circumstances may require ;—but it is well known that in these cases, the proceedings of the military commander are usually impeded, and perhaps paralyzed, by the want of full authority to act according to his dis-

cretion, and by the interference of the superior powers in the government.

THE EFFECT OF RIFLED CANNON ON THE ATTACK AND DEFENCE OF FORTIFICATIONS.

The greatly increased power of pieces of ordnance, in length of range, penetration, and accuracy of fire, will give much more advantage to the attack of fortresses and fortified posts, than to their defence.

Towers, old castles, and escarp walls in general that are exposed to view will be readily ruined from greater distance. Although the new shot and shells are not adapted to afford the regular effects of a ricochet fire, works will be subject to all the other evil consequences of enfilade, and that from much greater distances; parapets will be penetrated and ruined with greater facility; the interior of works will be plunged into from heights, at greater ranges than have hitherto been practicable; and where magazines, barracks, or other important military establishments are exposed to such heights, and have hitherto been safe from them, they will now be liable to direct cannonade or bombardment.

The first approaches to fortified posts will be greatly facilitated by these advantages: nor does it appear that these effects can be cunoteracted by

any alteration in system of fortification:—they will only admit of palliatives.

Guns and ramparts, particularly those of flanks that cannot be opposed by any distant direct fire, will require, more than ever, to be under bomb-proof cover; parapets must be thickened; openings of embrasures reduced to a minimum, and some of them, perhaps, strengthened by such applications round them, of iron, timber, and masonry, as shall be found most effective; escarp walls and buildings, and masonry in general, must be more covered than ever; defensive mining will also be of more influence than hitherto, as that, at least, will be unaffected by this improvement.

The advantages then will be considerable, during the first preliminary operations against a fortress; but when, in well covered fortresses, the contest becomes closer, which is the more important period in every formal, protracted siege, there will be little or no benefit to be derived from this species of ordnance: any gain in their breaching power will be of little practical utility, and will hardly compensate for any extra expense of employing them.

In defence of fortresses, the advantages of this new species of ordnance will be smaller.

A slight increase of profile to the parallels, approaches, and batteries of the attack, will neutralize the increased power of penetration in the missiles; enfilade is impracticable; and such

direction will be given to the besiegers' embrasures, with a little increased cover, as would expose them to the least possible direct fire.

Almost the only benefit to be derived from them in a garrison, would be the power of greatly annoying and impeding reconnoitring and other parties of the besiegers' forces, that might be engaged in traversing the open country within sight; and also of throwing shot and shells into their encampments, and thus forcing them, in many cases, to the inconvenience of taking post at much greater distances; and these advantages may be obtained by a very light class of these weapons.

A very decided direct effect, however, will be produced by these guns, in contests between batteries and ships; the advantage being most importantly in favor of the shore batteries. The weight of metal, power of penetration, and accuracy of fire, will cause the ships to be cut to pieces, at very considerable ranges, from whence their own fire would be very ineffective against the battery; while, for any close conflict, the present armament of men-of-war would be nearly as efficient.

But perhaps the most important bearing of the question to us, will be in the exposure of great naval arsenals to a thoroughly effective fire, from ranges that were before unattainable.

It being now ascertained that these guns can

throw shot and shells as far as 9,000 yards, and with considerable accuracy, it becomes a matter for urgent consideration, how these and such extensive and important establishments can be best protected from their destructive effects.

The circumstances will be rare where they can be covered by fortifications, duly garrisoned, for a complete circuit at that distance, or even for such distance as will be out of sight for that limit.

The development of such an extent of works, their cost of construction, maintenance, and armaments, would be usually enormous; and the large garrisons they would require would preclude, almost universally, the possibility of recurring to such protection.

Few arsenals, however, would not be protected from rapid assault and absolute possession, or even near approach, by the enemy: the consideration then is, whether, as the only resource, any measures within the establishments themselves could be adopted to reduce, more or less, the ruinous effects of this distant bombardment.

The cost would no doubt be considerable; but there appears to be no evading it, consistently with the preservation of such important war means.

Bomb-proofs and screens of earth must be freely applied for covering, at least, the most precious effects and stores, in the same manner as has been always considered necessary for maga-

zines, troops, stores, and provisions, for an army in garrison; the arrangements for them would require new considerations, so as to adapt their dimensions and distribution in the most economical manner consistent with convenience for the service.

At the very long ranges against which it is here proposed to endeavour to provide, it is not a fire that is nearly horizontal, at present, that is to be guarded against, so much as the descent of missiles vertically or nearly so; and therefore the protection is required chiefly above.

Among the considerations for economy for this increased protection, the following, among others, may be useful.

The higher a building may be, the less costly per cubic foot of space covered will be the bomb-proof for it.

The passages of communication may be chiefly external on each floor, (and not bomb-proof,) which will give the advantage of a power of subdivision and isolation of the stores against the spread of conflagration.

Although the damage done by each shot or shell is to be avoided, the greatest injury to be dreaded and guarded against is the spread of fire from their effects; the bomb-proofs will, therefore, be much more requisite for the combustible than for other articles, and for those, in the first instance, that are of the greatest value; and if, at the same

time, not occupying much space, they might be so protected by comparatively small means.

As a remedy against extended evils by even casual conflagrations, great attention is habitually given to obtaining a water power over all dock-yards, either by the use of fire-engines, supplied by reservoirs and pipes, or what is better, by tanks, at such an elevation as will afford a constant natural power of throwing the jets; these resources will be available in cases of bombardment, and the more profuse and powerful, the better; but additional precautions may also be applied.

One would be to disperse and subdivide the combustible stores, by the intervention of others that are less, or not at all, subject to that disadvantage.

Great ranges of combustible buildings also, for the same effect, may be completely separated by intervening portions, at given lengths, of more substantial construction, higher, and incombustible.

In order to obtain tanks in an elevated position, they have, at some places, been established on the roofs of substantial buildings and store-houses.

This, where practicable, would be attended with the additional advantage of procuring, at the same time, an admirable bomb-proof; and it would be worthy of experiment to ascertain what depth of water would have that effect.

For economy in protecting stores, there may be articles, such as pitch, and perhaps some others, not susceptible of injury from damp, that might be lodged in pits and cellars.

Men-of-war, under apprehension of bombardment, have, on various occasions, had their decks covered by bomb-proofs of timber. The floating batteries used against Gibraltar in 1782 were so protected; and the quantity of timber applied, and the system of construction, at that, and at other times, is probably on record; but it would still be an interesting matter for experiment and study, to ascertain how timber could be best adapted to the purpose, in the most simple manner, with the least labor, and by the smallest amount of a cutting and conversion that would reduce its subsequent value for the purposes for which originally obtained.

This system of roofing might then be found applicable for covering, not only the men-of-war, but stacks of timber and other articles.

Perhaps even a small portion of the stores of timber might be kept habitually in position, that would turn shells, and without much sacrifice of convenience.

Vessels that are sunk under water are secure from bombardment: it is a remedy scarcely applicable to large ones, from the difficulty of raising them again, and would, no doubt, be attended with much injury to any, except boats; but still, in

cases of emergency, it might be applied, and of course it would be desirable to consider well previously the best system for it.

The object, in fact, is to study how the valuable premises and effects of the naval arsenals can be most conveniently and economically protected, at least partially, from the bombardments, and even cannonading, to which they will be now more than ever liable.

But though the means here adverted to might be of much avail in the present state to which the construction of artillery has arrived, we may well anticipate a time, and at no distant period, when it will be found practicable to use, in siege, shells of such increased weight and power, as, by a vertical action, would crush all ordinary artificial bomb-proof cover, such as has been adapted to resist the heaviest of the existing kinds; and by their explosions, ruin ramparts, and even overturn escarps.

There are certainly some difficulties to be overcome; but the modes by which it may be done may be readily conceived.

It is extremely difficult, at the present moment, to foresee what species of remedy can be provided against so vast and novel a power, when once established; but it will tend to reduce, in an enormous degree, the power of resistance of existing fortresses, and more particularly of such as are small.

THE LASSO, OR SOUTH AMERICAN SYSTEM OF DRAUGHT.[1]

In immense districts in South America, which are covered with wild cattle and horses, the latter are taken up at will, by the inhabitants,—not only for the saddle, but by the simple addition of a long rope, (in that country made of hide,) which is termed the lasso, and is adjusted to the saddle, the animal becomes at once a perfect draught horse, that can be attached to any carriage,—will never refuse to draw, and, by a peculiarity of the system, twelve, twenty, or any number of horses can be rapidly attached to any carriage, aid it through any difficulty, and be cast off with the same facility.

Sir Francis Head, with that energy and intelligence that are eminently his characteristics, was so struck by this power, which is wasted in Europe, that he studied minutely the whole process, during the extraordinary rides which he made over the plains of that country, under the idea of the value that might be obtained from it, if adopted in the military service.

In 1831 he exhibited the powers and effects of

[1] This system of draught for military purposes was introduced into England by Sir Francis Head in the year 1831. It met however with considerable opposition at that time, and was never adopted into the service. During the Russian war, the subject was revived by Sir John Burgoyne, who was convinced of the great value of the proposition from the experience of that as well as former wars. It is now introduced by authority into our service —ten men of each troop of cavalry being equipped with the surcingle and lasso.—EDITOR.

this contrivance to the late Duke of Wellington, and some officers of note in different branches of the service, all of whom were greatly impressed with the value of the proposition, as recorded by several of them in letters to Sir Francis.

The matter, however, was not followed up; which is attributed by Sir Francis Head to the vehement opposition it encountered from the cavalry officers, who thought their service would be degraded by applying their troopers to the drawing of carts, as they opprobriously termed it, instead of taking it in the true sense intended, of using them only in rare cases of emergency, and thus adding very greatly to the value and efficiency of their service, as well as developing a new source from whence they might gain distinction and renown.

The following description of it may serve to explain its principle and mode of application to the military service :—

The lasso is a long rope, made in South America, of bullock's hide, attached at one end to the surcingle of a horse's saddle; the other end, formed into a running loop, at full gallop is thrown over the head or horns of the wild horse or cattle, by which they are caught; this, it is believed, is essentially the lasso: but the same rope is used for drawing the carriages in the country, to which application it is alone intended here to refer, under the name of the lasso.

To adapt a riding horse to the lasso requires the

addition of a peculiar surcingle over the saddle: it is made of hide, and is a perfect substitute for the ordinary girth, and not more expensive; its fastening is by a small thong of hide, passing through two rings, and is much more simple and powerful than the ordinary straps and buckles; in appearance, it may not be thought so neat as the ordinary girth—but, though rough-looking, it is manifestly very substantial and service-like. On each side of this surcingle is a double loop, also of hide, one eye of which is in front, and the other behind the knee of the man when mounted; a long rope, with a hook at each end, which may on occasions be used as a forage cord, completes the equipment; and thus, any saddle horse is provided with every requisite for draught, and requires no breaking in: *for none, when mounted, refuse to apply themselves to it.*

One end of the lasso is hooked on to the end of the pole, or any standing part of the carriage, and the other to the right or left side of the horse, according to whether his draught is to be on the off or near side of the carriage; on the right, if he is tackled to the near, and on the left, if tackled to the off side; the rope may be shortened or lengthened, according to the position the horse is to take in the line of draught.

By this arrangement, it will be understood that the horses (except the wheelers) are not necessarily in an immediate front line to the carriage, but may be spread considerably right and left, and to more

or less distance in front, as may be convenient. This is of great advantage in the application of an unusual number of horses; and also in enabling each horse to pick his way. If the wheelers are also lasso horses, they have a short rope from the fore eyes of the surcingle, attached to the end of the pole.

For steep descents, one or two, or even more horses are hooked on to the rear of the carriage, and act far better than any drag: for their power can be regulated according to the necessity of the case, and enable the carriage to be eased down any declivity that a horse can walk down, besides saving the inconvenience and injury arising from the dragged wheel.

The power can, in like manner, be applied laterally, and a carriage prevented from over-setting, when drawn along a steep side slope, such as would inevitably cause it to turn over, if not so held up.

In short, under any circumstances of ground, the carriage is under complete control of the horse power, which is rapidly applied in any direction, and in any required proportion.

No opportunity has yet been afforded of ascertaining the power (temporary or enduring) of the horse by this mode of exerting it, or of comparing it with that of the collar, or breast-plate with double traces; but, judging from appearance, it is evidently greater than would be supposed; if

continuous, the horse would, of course, be relieved, by occasionally having his side of draught shifted.

There are always plenty of standing parts in every carriage to which the end of the lasso can be rapidly applied by one or more dismounted men; the other end can be shifted, by the mounted man himself, to either of the four eyes on the surcingle that may be required. The unhooking from the carriage is done with the same facility; but in cases of a very sudden call for the men, such as, supposing they were an escort, assisting the draught of the carriages, and suddenly threatened or attacked by a detachment of the enemy, or by marauders, they would then unhook *from the saddles*, leave their lassos on the ground, but still attached to the carriage, and in an instant they would be ready to repulse the attack, resuming their lasso when the affair was over; and in this way it is evident that the greater number so employed, the greater would be the force available for such emergency.

A gun, without its limber, is quite unmanageable with ordinary harness, but can be moved in any direction with the lassos; they are hooked on in any numbers to the trail, or other parts of the gun, and the gun is drawn with great facility. One, or even two, if necessary, are attached to the muzzle, which assist in guiding it, or in going down steep or over very rugged places; and it is

surprising how manageable it is, even in circumstances of considerable difficulty.

By this means, an enemy's guns, charged, and in the power of a body of cavalry, even for a *very few minutes*, could be carried off, where, under present circumstances, they must be left on the ground to be regained, perhaps by the enemy, as frequently occurs in a campaign.

On one occasion a gun, drawn in this manner, was upset ; and it was found, that in that position, with the gun under, it could still be drawn with facility, and even guided round corners and intricate passages.

It may be conceived in what a vast number of cases an enormous power might be thus obtained from the cavalry in a campaign, without impairing its own service in the slightest degree, to the gain of the most important advantages by the army that employs it.

Thus, how frequently may it occur, in heavy countries with bad roads, that the marches and manœuvres of the army must be regulated by the power of traversing the district by the artillery ; and when the rest of the army could march 15 or 20 or more miles, the artillery could not do more than half or two-thirds of the distance ; but, attaching to each brigade of guns 100 or 200 cavalry, it could do the whole, and by so slight an effort, that no one service could be harassed by it. Or a position might be reached by the guns, over

miles of difficulties, that would be otherwise unattainable.

And thus, under pressing emergencies, provisions and stores might be assisted up to the army. Let the cavalry horse apply a power of 300 lbs. net draught, which is extremely light, and only for five miles in a day, and he would bring up bread rations for 200 men for that distance; or 200 horses would bring, from 10 miles' distance, the same one day's rations for 20,000 men, and so of forage or stores. It may be understood what a power would be thus added to the efforts of an army, and so applied, its effect is not only direct, but indirect, in saving the additional number of animals, and *their forage*, which would otherwise be absolutely necessary for perhaps a merely temporary effort, that the cavalry could afford without difficulty.

It may be remarked, that much consideration is necessarily given to the maintenance of the efficiency of the cavalry in a campaign, by stationing them in situations where forage is of easy attainment, and keeping only such at work and in advance as are required for the out-post duty: the great body being in the rear, in reserve, to be brought up for given periods of action. When so retained, in a state of comparative inactivity, a vast amount of most valuable service, by means of the lasso, might, in cases of emergency, be performed by them, without an effort that would,

in the slightest degree, damage them for their legitimate service.

The only danger I can perceive as possible to arise from the introduction of the lasso, is one proceeding from its very perfection—it is, that too much reliance might be placed on it by other departments, the commissariat, for instance, so as to induce them to relax in their efforts to organize their own departments in the most efficient manner independently; but this must be regulated in the most stringent way, and the assistance of the cavalry obtained as supplementary and for emergencies only, and not as a rule.

It is worthy of note, in favor of the lasso, that the important element of the bullock's hide, as the chief material required for it, would be available on service, in the greatest abundance, and without expense—one bullock's hide can be cured, and made into 10 surcingles on an average, with a corresponding number of small lashings, in seven or eight days from the death of the animal.

A free but well-regulated use of the lasso will increase the value and utility of the cavalry with an army to an enormous degree.

THE IMPORTANCE OF PROVIDING RELAXATION FOR THE SOLDIER WHEN OFF DUTY.

In the arrangement and construction of a barrack, it is of essential importance to consider not only what is absolutely necessary for stowing away,

in a manner not injurious to health, the given number of men, but also to afford them the greatest degree of comfort; if possible, to make it a home to which they shall resort for relaxation and amusement, with as much satisfaction as they have hitherto habitually been forced to do to the public-house or other demoralizing receptacle.

There should be no withholding of any such advantage on the plea of excessive indulgence or luxuries, as they may be termed; for as regards the effect on the soldiers, there can be no excess. The only check should be in the expense, and, unfortunately, that will be a great one. The problem, therefore, will be, to determine what is the limit to be put on that expense, as compared with its advantages; and how, whatever the expense to be incurred, the whole may tend, in as great a degree as possible, to the desired end; for a cottage may be made more or less comfortable with little or no increase of expense, and so may a barrack.

The barrack is required for the soldier for sleep, for meals, for deposit of his effects, for cleaning himself, his clothes and equipments. For the last great want, "relaxation," he has been left to provide himself as he can, and the only place of amusement or relaxation usually at hand, and that is almost universally applied to for the purpose, is the public-house.

In recent times some attempt to break this evil has been made by the addition of fives courts and

reading-rooms to barracks, and, so far as they go, they have been successful. It is understood that the fives courts are generally well attended when the weather permits; but the effect of that benefit is very partial, and it still leaves vast gaps to be filled.

The soldiers may be said generally to be well fed, clothed, and lodged, so far as mere protection from the weather and a good bed are concerned; but if the object is to make the service popular and desirable, it is of the first importance to improve the barracks in respect of this great want of relaxation and amusement when off duty.

Whatever relaxation may be introduced into barrack-life, a very essential point towards drawing the soldier to consider his barracks more in the light of a home, will be to caution officers not to exercise too much of an interfering or prying attention to their amusements; any mixing in them, on their part, whether in sports or in the management of libraries and reading-rooms, should be friendly, and, in a degree, familiar.

While a due deference and reasonable respect should be shown, on all occasions, to the commissioned and non-commissioned officers, the *rigid discipline* ought to be confined to the parade-ground and military duties only. The men would thus be led to look upon their officers as friends, and any reserve on the part of the officers towards individuals, will itself become irksome and a species

of punishment; the good soldier and well-conducted man will become, as it were, associated with the officers in the encouragement of good conduct, as the drunkard and ill-conducted man will be despised. This would tend more than anything else to reform the soldier, and prevent the growth of crimes and irregularities.

With an improved barrack-system, and the drawing the soldier to rational occupation, the mode of treating them will be amended, a greater trust reposed in them; there would be less of irritating ro repulsive surveillance, less punishment; they would become more intelligent, be less of mere machines, and more easily acquire the essentials of their art.

DEFECTS OF ORGANIZATION IN THE BRITISH ARMY.[1]

We are not about to give a *treatise* on the several departments of the army, but merely a few scattered hints that have crossed our minds during the service in the Crimea; we shall be then excused if they appear to be unconnected or incomplete. They are on matters only that happened to occur to us, and are rather submitted for the consideration of those who may be competent to make improvements, than as presuming to prescribe any law.

We are certainly far from being a military nation, and have very little experience in campaign-

[1] Written in the Crimea, in November 1854, and published in *United Service Magazine* of February 1855.

ing. We have some magnificent material, much of which is beautifully organized, and very perfect in abstract parts; but when put together as an army in the field, at long intervals, the whole is disjointed, and many very important elements have to be created, or *improvisés*, as it were, with a bad, or without any previous system, and without masters on the subject. Our ordinary arrangements are calculated for little more than home or colonial service.

Nothing can be finer than the primary organization of our infantry; the men are magnificent, well clothed and taken care of in quarters, of superb appearance, and in their training and movements as near perfection as any troops in the world. They have also (in common with every branch of the service) a spirit in action which ample and universal experience shows cannot be disputed.

The officers are excellent; but both officers and men, on first starting on actual service, are greatly wanting in many necessary qualities. They are never well accustomed to marching, and with the full equipment of soldiers require some time and practice before they can at all equal what can be done in that way by the troops of almost any other power. They are particularly deficient in everything appertaining to the art and practice of war—outpost duty, patrols, attack and defence of ground and posts, and what may be called in general *la petite guerre*. They frequently either allow the

enemy to take great liberties with, and circumvent them in various ways or else they undergo unnecessary fatigue and inconveniences, or submit to unnecessary losses, in making their awkward and unprofessional attempts to counteract him. They are very helpless in taking care of themselves, and are without conception of the various devices adopted by a French soldier to turn to the best account what the country will afford (in this I do not mean to refer to a system of general pillage of houses and accumulated property, but as regards what may be termed the *legitimate* sources of supply to the soldier's wants). All this is inseparable from want of practice, but is gradually remedied by that practice; thus the British army, during the latter campaigns in the Peninsula, could vie, even in those properties, with any army in the world.

The above description and character, as far as they go, are, with slight exceptions, applicable also to the British cavalry, but there are more unfavorable peculiarities in that service.

There is not such universal admiration for the training of the British cavalry as of the infantry; the horse is not broke in a way generally to please foreign cavalry officers, nor perhaps are the saddles, bridles, and equipments precisely to their ideas; but these matters have, no doubt, been well considered by the British cavalry officers, and we have no right to suppose that they may not be right

in their decisions. There are, however, characteristics in a British cavalry soldier which seriously affect the efficiency of that arm in the field. He is afflicted with the same helplessness that is common to the infantry soldier, which prevents his exerting the same ingenuity as those of other nations, in providing for his wants from what the country will *legitimately* afford ; and in his case, the evil is doubled, for the horse suffers also in a degree that might be prevented. He is also equally ignorant of the art of war, in those details which the officers, non-commissioned officers, and soldiers daily require in the field ; and this is attended with the more evil, as the out-post duty of the cavalry requires even more experience and knowledge than that of the infantry, and accordingly we find that the early periods of campaigns by a British army are always, more or less, attended by serious errors on the part of the cavalry, which are vainly endeavoured to be compensated for by frequently extraordinary prowess when in actual conflict with the enemy.

But we fear we must attribute to this branch of our army a much more serious defect, and one that renders our cavalry often inefficient upon service : we allude to the want of attachment in the man to his horse, without which the latter must always be likely to fail, in spite of every effort on the part of the officers. A *good* cavalry soldier will do his duty by his horse according to pre-

scribed orders and bidding, but even *he* will seldom go out of his way to do more; while the bad one (and of course there will be many such) will avoid, when he can, performing even the ordinary duties to his horse, reckless of the consequences as regards the poor beast; and the worst, such as are frequently met with, will cheat his horse for his own comforts and gratification, to the extent, as is perfectly well known, of selling the forage (if not very sharply looked after, which cannot always be the case,) to procure liquor for himself.

It was long thought, and is still by some, that the habits of the English horse disqualified him for a life of deprivation and hardship; but the Hanoverian cavalry man in the Peninsula proved that such was not the case, when the horses were in the hands of good horsemasters among the Hanoverians, whose natural disposition was deeply tinged with a real affection for the animals with whom they were associated. The example they set was, at that particular time, taken up by British artillerymen and cavalry, so that the striking falling off in the condition of the horses under deprivation, was no longer so great, although, of course, the natural indifference of the man for his horse remained very much the same.

There is a great want in our service of a real Light cavalry. Between what are called with us

heavy and *light* cavalry there is little actual difference in qualities: heavy men, large heavy horses, and heavy equipments, all very unfit for active out-post duties, patrols, escorts, orderlies, messengers with orders and correspondence, &c., &c., and wanting as well in instruction as in other qualities.

We leave it to the judgment of those more conversant with the cavalry service, but we would throw out as one of our hints, that very active light corps might be raised of men of smaller stature and lighter weight, more lightly armed and equipped generally, and with a lighter and more active horse, well trained to the kind of work, who would be more equal to it, and who would suffer less by duties which distress the ordinary dragoon horse in a great degree.

For the out-post duties and patrols, this corps must be very much assimilated to the regular line cavalry, but made somewhat more active; but for what may be called rather camp or cantonment duties, such as escorts, orderlies, messengers, attendants on the staff, &c., &c.—men who would have to meet the enemy only in desultory, dispersed bodies, and even, in these cases, very seldom—they might be much lighter, and even mounted on horses of the country, which are sure to be very useful, and more hardy, in their own localities, and would cost less money.

Such distinct corps for these especial services

would have the additional advantage of preventing the necessity for the heavy drains that are now made for them on the brigaded regiments.

The field artillery in the British service is admirable, and thoroughly appointed in every respect, without regard for expense, or reserve in providing for it. The system of guns, carriages, stowage of ammunition, &c., was so good from very old date, that, after we had the exclusive benefit of it for the whole of the wars with France from 1793 to 1815, it was copied in all essential particulars by every military country in Europe. The artillerymen, by their use of expedients in their ordinary duties, are not so helpless as the infantry or cavalry, and they have, by their resources in carriages, the means of being generally somewhat better provided for. The same national habits and character render the artilleryman as bad a horsemaster as the cavalry soldier; but, although that will produce its effect, it does not reach the extreme of the other, as the artillery are not so much detached, and consequently not so free from constant inspection and control.

The engineer department has a body of officers full of zeal, well instructed, and adapted to their duties in the field; they have also a corps of sappers, organized by companies, well instructed, and generally intelligent and most useful. In all instances, when employed in Great Britain in

services of much responsibility, their conduct has been exemplary, and they have given very great satisfaction. In the field, and especially in sieges, while generally distinguishing themselves, the sappers have, in a few rare instances, shown a degree of irregularity which, from their general character and their known capabilities, creates the more disappointment, and may partly be attributed to the want of quality in the officer commanding the company, for that particular charge, although he may be excellent in others.

The great evil, however, in the organization of this corps, and one which frequently prevents their rendering most important services to an army in the field, is their being totally without any recognized means of transport for entrenching tools and stores. The system is, to rely for this service entirely on the means of transport to be procured in the country, all of which, and for all purposes, is collected by the commissariat, and then allotted according to the several wants of the army; the consequence is, that the first necessities being, of course, provisions for the troops, and forage for the horses, conveyance of sick and wounded, and certain stores, tents, &c., it is only after all these are provided for, and perhaps even then subject to many irregularities and abuses, that a portion of what may remain available will be given grudgingly for engineer stores: and even these are redemanded on an occasion of scarcity for the other

objects. The result is, a provision that is fluctuating, which may be good and ample, or may be otherwise, without reference to the necessities of the service. The drivers, carriages, and animals, may be efficient or the reverse; they are, at all events, unknown to the officers, and there can be little mutual feelings of reliance on each other. The highest possible authority, founded on the greatest experience, the Duke of Wellington, saw the necessity for placing this department on a more stable footing. In Spain, he attached to the department, permanently, a given number of mules (120) to carry a field depôt; and in France, in 1816, a regular establishment of waggons, horses, and drivers.

It is unnecessary here to describe the utility of an engineer's field depôt for entrenchments, attack and defence of small posts, destruction or repairs of bridges, and a thousand matters of daily occurrence. With the field depôt carried with the army in Spain, the forts at Salamanca and Burgos were *besieged.*

The British army is inferior and deficient in a very essential ingredient so long as this defect remains. A field depôt of carriages, horses, and drivers, should be at once devised and established on different scales, the drivers incorporated with the sappers, so as to be applicable to either duty, like the gunner drivers. A certain force should accompany every army with horses, while the full complement

of the establishment, for any distant service, might be of horses or mules of the country; the drivers, carriages, and harness, being taken out from England for the purpose, like many other services, for which the particular qualities required for artillery and cavalry are not necessary.

The medical department in the present campaign has been greatly censured; but the complaints have almost entirely referred to an assumed bad disposition of the means that were really available. There is one defect in it that is common to most of the civil departments, in the want of an organization that leads to an *esprit de corps;* and it is probable that the whole require a permanent embodying of the accessory branches, on which more reliance can be placed than on the present mode of collecting what is wanted, hastily, and under no fixed principle.

The commissariat in a campaign is decidedly the most important department of the army; it has to provide food for the troops, forage for the horses, means of transport of every kind for the whole army, except the artillery, and a small proportion especially allowed for the sick and baggage. It has under its charge the military chest and all payments, together with the furnishing of every requisite for the army not specifically provided for in a distinct manner. Overloaded with duties, it has no defined or recognized system, nor officers who can, by possibility, have experience until a

first few campaigns are passed, or unless one war shall so rapidly succeed another as to produce the same effect. Besides which, the officers of this important department are not so embodied as, by habit or instruction, to gain any practical knowledge of its difficult duties, nor are they on so permanent a footing as to acquire any *esprit de corps*. Thus, to conduct the very various, arduous, and complicated affairs with which this body is charged, it has to be raised for the occasion, without other knowledge of the individuals composing it than recommendations of general intelligence and aptitude for business.

With a body thus *improvisé* for every occasion, there can evidently be none of those accessories, nor established system, that must be imperatively required for the proper performance of such multifarious service. For provisioning an army, for instance, are required a body of men understanding how to collect the resources of the country of each particular kind. For transport—the most important item of the whole, as on its abundance and due regulation will depend the movements of the army, and upon these movements, more than on the fighting, will probably depend the success of the campaign—are required a first equipment of carriages, horses, mules, &c., and means of organizing, with regularity, a vast increase in the country, as the necessity for such increase arises.

Every branch of duty with which the com-

missariat is charged, demands a peculiarly well practised establishment, the very point in which that department of our army is most deficient. In no other army probably in the world is this essential department so perfectly helpless as with us, and a British army, in consequence, would starve, or be incapable of moving, where one of France, Germany, or Russia, would be well provided. We have but two resources : either from our shipping, which is of less avail as the army quits the coast, or contracting and purchasing at, of course, unusually extravagant prices.

The first is only thoroughly applicable for flying operations confined to the immediate neighbourhood of the sea-coasts, and then the chief management of it will devolve upon the navy ; the other, on our present system, must be precarious, and never insuring the full power over all the supplies a country can afford, which an army holding it has a right to demand, and which it would possess under a properly regulated system.

In an abundant and friendly country we may, perhaps, obtain our object by contracts ; but where the supply is scanty, the population inimical or lukewarm, or, even if friendly, under any occasional cause of apprehension or discontent, which leads many of them to remove, our army is driven to much distress. It is rare, if ever, that we resort to a system of forced supply by imperative demands ; and we may be in a most

fertile country, in the middle of harvest time, and get no bread, if we do not find mills and millers, ovens and bakers, ready to work for us.

In marching through a country, it is only after some experience, and regulations have been devised and made available on the spot, that the value is perceived of placing all supplies, particularly of forage, under charge of the commissariat, to be regularly issued by them, to prevent the great waste that follows everybody helping himself at his pleasure.

Such is the general idea we have formed of the commissariat system, or rather want of system, and whatever evils spring from it are not attributable to those unfortunate individuals of the department who may happen to be attached to the army. We will venture upon a few hints on some matters of detail, chiefly appertaining to the commissariat, where we think improvements might be made.

The means of transport is what seems to call principally for attention. It requires more precise organization and more care bestowed upon it than it meets with at present. The supply of native drivers and their cattle must be precarious, and not to be relied on, till after one or two campaigns a certain number may become attached to the service, and satisfied with it. With our present system, where it may be said that the very existence of our army depends upon these men and

their cattle, it might be supposed that, apart from other considerations, motives of policy would prompt us to treat them with consideration and kindness; but, so far from this being the case, they are insufficiently cared for, nearly always overworked, and not unfrequently left without forage for their cattle, or provisions for themselves. Thus many of the men escape with their beasts, others go away without them, and the cattle or horses fall into the hands of ordinary soldiers, who take little interest in their welfare, so that, for want of due superintendence and arrangement, they rapidly die, or become inefficient.

To remedy this evil as much as possible, as many as are wanted for constant specific services should be permanently allotted to those services, the commanding officers of which would know their value, take an interest in them, and see that full justice was done to them. Those for the engineer depôt have been already alluded to, and in like manner a constant and most essential requisite is transport for musket ammunition. The animals for this service are habitually provided by the commissariat, with their native drivers—a most inconvenient and improper arrangement. They are required to follow every division into action; the native drivers can never be fully relied on for such service; hence the necessity for guards or escorts, to the great abstraction of effective men from the ranks.

This particular service, above all others, should be performed by the military. With the French, the spare small-arm ammunition is carried exclusively in artillery caissons attached to the field batteries, to which the regiments resort for any fresh supply wanted. With us, there are pack-saddle horses or mules that always accompany the troops, to furnish an intermediate supply ; if the latter are necessary, they should form part of the artillery establishment, with artillerymen to conduct and serve them.

We may here, *en passant*, allude to the present inconvenient mode of packing the musket ammunition for distribution in action. First, as regards the case itself, which is of a most incommodious size and shape to be carried on a pack-saddle, unless a particular receptacle adapted to it were applied expressly to each saddle ; and secondly, to the inconvenience of having a number of nicely adjusted screws that require to be loosened at such a period.

With regard to military transport in general, instead of the present unsatisfactory manner of hiring it in the country, the greater portion—that of most absolute early necessity, such as for engineers' depôts, for musket ammunition, and for sick and wounded—should be complete when the army takes the field, with British drivers, waggons, harness, horses, mules, and pack-saddles, as the case may be, as distinct corps, and with proper

responsible officers. The men may be undersized (and perhaps better so, if able and robust), under military discipline, very lightly armed when in marching order, well paid, of good character, and trustworthy. The horses need not be of the size of those for artillery or cavalry, but small, stout, and hardy. If circumstances require, or render it convenient, that the animals should be procured in the country, still all the rest, both men and materials, should be British, previously duly organized.

There would still be required a large but fluctuating amount of transport of the country, for the reserves and many other necessities. This must be collected by contract and agreement, and with regard to it, the chief improvement required is, that they be brigaded on system under responsible officers, who should not only see that they do all the duty required of them, but that they have every reasonable want supplied, and are treated in a way to keep them efficient and the men contented.

Each department of the army and every division of troops require a standing amount of transport to be continuously attached to them. This amount of transport will be larger or smaller according to the country, season, and nature of the service. For instance, the engineers require transport for their depôt of stores and tools ; the medical department, for their waggons and other

means of carrying sick and wounded, for their field hospital appliances, medicine chests, &c.; the general staff, for their marquees and office implements; the troops, for their spare ammunition, and perhaps tents, and a few days' provisions, in addition to what the men carry, &c.

This amount of transport, with at least a certain reserve for general purposes, should be fully organized as a military body, with its responsible officers, but on a system adapted to their particular service. The men composing it should be enrolled, and drilled to all the first rudiments of a soldier, — very lightly armed, wearing a uniform, but in which convenience was peculiarly studied, and with a cavalry valise for their necessaries, instead of the cumbrous infantry pack. So far from looking lightly on this corps, it should be considered one requiring peculiarly good conduct and trustworthiness, and should therefore be respected and well paid.

By *lightly armed* is meant such means of defence only as may be really sufficient for their purpose. The men employed on this duty should be able to defend themselves and their charge against marauders, or a troublesome population, and such attacks as may be met with in the rear of the army. They would very rarely be opposed to the enemy, and then only to very small dispersed bodies, and would need no escort, except when more exposed than usual; in which case

they would be protected by the necessary detachments of regular troops. A very light carbine, (not heavier than a good fowling-piece, and, if with two barrels, all the better,) slung somewhere about the person, might be sufficient, without sword or bayonet. Pistols are a far less efficient weapon, and revolvers too complicated and wanting in simplicity at present. To save as much as possible additional labor in the care of their weapons, they might be habitually kept in good waterproof cases, to be provided for the purpose.

As it is absolutely necessary to have these attendants on the army, the difference of expense between their being thus regularly established and hired, as now, would not be considerable, and probably nothing, if their stability and the saving of escorts be taken into account; for being more trustworthy, and with a certain degree of self-defence, the escorts now required, not only to defend their charge from external violence, but to secure the services of the drivers themselves, might be dispensed with.

It may be thought that by attaching these parties to departments and divisions for specific purposes, they might be at times of halts without occupation, while all possible means of transport might be required elsewhere, either for the general arrangements of the army, or for some special services; but when such cases occur, as, for instance, the carriage to the front, or removal

of reserves of provisions, the transport of a siege equipment, stores, &c., they might always be lent, still retaining their established superintendents, and always considered as part of, and returning to, their own especial corps and duties.

A very great inconvenience, amounting to an evil, is experienced by every British army in the field, by the number of men from those who would be otherwise efficient in the ranks, abstracted for various necessary purposes, such as numerous interior guards, mounted and dismounted escorts, orderlies and servants away from their regiments, attendants on staff and on sick, driving of cattle, &c.,—thus leading to a reduction in the strength of the regiments, by which the duties become more harassing; and such small detached parties or individuals, subjected to little control, are a source of frequent irregularity; and, whether cavalry or infantry, both horses and men are ill adapted and badly equipped for the peculiar services upon which they may be employed.

This system might be much improved by establishing specific corps, mounted and dismounted, for these duties, duly selected, organized, and instructed for them,—light men (those that are mounted, lightly horsed), and lightly armed and equipped. By this method, the service would be more regularly and economically performed, and the regular troops maintained in a more efficient state.

Attempts have been made to introduce pensioners for extra services of the army, but the result has been a failure; many were unequal to them from bodily debility, and many, although previously of good character, had acquired habits of indolence and intemperance that exhibit themselves under the hardships of a campaign, although unperceived under the quiet organization in Great Britain.

One great difficulty that will be raised to the proposed increased establishments for field service, will be, that even although of admitted utility for that peculiar period, they would not be required for home or colonial services; and, consequently, their maintenance attended with considerable expense at all times, for what is only occasionally and rarely required. This is an inconvenience that must be felt with regard to many military arrangements that are only liable to occasional application, but may be partially remedied by having an acknowledged and understood system, well defined, with a small but perfect establishment, constantly maintained, capable of ready extensions in any required degree.

With regard to the service in Turkey and the Crimea, it may be remarked that in a system like the present, where so much reliance is necessarily placed on the resources of the country, the difficulties must be greater than ever, when the operations of an army are carried on in a country

where the languages are so little known, and so difficult to acquire.

BRITISH CAVALRY.[1]

No one has ever seen the appearance of any body of British cavalry on parade, or its manœuvres at a field-day, but would exclaim, "magnificent!"—nor could any one witness its conduct in action, either in a passive state under fire, or in its manœuvres, or above all in a charge, made without reference to, or a thought being given to the numbers of the enemy, but must be struck with admiration. The horses are of a very superior class, and man and horse equipped to perfection; good discipline maintained; the stable and other duties scrupulously performed; and officers and non-commissioned officers attentive in their charge: and yet the cavalry is the least efficient arm of our service in the business of a campaign; and in quality, as part of an army in the field, it is, in some respects, of inferior value to that of any military power in Europe.

The great leading cause of this inefficiency is, that the condition of the horses deteriorates rapidly under the exposure, fatigues, and deprivations of field service, in spite of every arrangement and effort on the part of the general to provide for them, by keeping them as much as possible in the

[1] From the *United Service Magazine* of December 1857.

rear, and in places where they may have the best chance of obtaining forage, shelter, and rest.

This defect is generally attributed to their being too delicately maintained at home; and it may be thought that the character of the large horse adopted for the British cavalry prevents him from being so easily kept in condition as the more compact, but smaller animal, that is considered sufficient in other countries.

The cavalry soldier of the British service is a large heavy man, heavily armed, and heavily equipped, and rides probably not much under the weight of the man in armour of old times; he requires a horse of proportionate size and strength; the animal, besides being of that lengthy nature which is difficult to keep in condition, is so weighted as to be only fit for slow regular work, with an occasional trot to make good a manœuvre, and a gallop for a charge; these efforts however must be rare and of short duration.

Cavalry are, as it were, the eyes of the army, and should be everywhere round it, full of brisk life and activity in all directions; thus, a great proportion should be what may be essentially called light, of which we have absolutely none! We necessarily make the attempt to perform these active duties, but it is an awkward one; the whole body suffers and rapidly dwindles in force, and the army is soon deprived of its services, except in an imperfect degree; while the cavalry of its rivals,

or perhaps enemies, are scampering around it in all directions.

We have, certainly, among the regiments the denominations of heavy, light, lancer, and hussar; but as regards the quality now referred to, it is a denomination only: for there is little difference in man, horse, and equipment; and the lightest are far from possessing the requisites of a really light cavalry.

It is unnecessary to stop to enquire what are the precise number of stone that a cavalry horse carries on service,[1] to which, on a march, is added a considerable amount of forage—the latter even being frequently taken into action: it is the principle to which we would advert, and the great improvement that would be effected by some organization, if possible, to remove a great disadvantage under which we peculiarly labor.

There are, no doubt, many difficulties in the way: a degree of strength and power that is requisite to enable a cavalry man to do his ordinary duties (and which, of course, would be of much advantage in action) seems to be incompatible with a very small man; and height even, in dressing and mounting a horse, appears to be desirable. All this must be adjusted with much consideration, and so as to obtain the greatest amount of lightness with the smallest sacrifice of power. The

[1] Probably not less than from 18 to 20!

nature of arms and equipments should also be studied with the view of reducing their weight as much as possible, with due regard to efficiency; and when the results are thus obtained of a minimum of load for the horse, researches will then be made as to the most proper description of animal for the purpose, with the great advantage that they could be found abroad as well as at home.

That this may be done we know, because it is effected in other countries; and surely we have a choice of men and horses, and an amount of ingenuity for making up saddlery and equipments, that ought to enable us to compete with any. The first study then might be to ascertain the details of arrangements and all particulars of the best models of other states; and then to copy, or rather improve upon them.

We are proud and may justly be so, of the prowess of our cavalry, aided as it is by the weight and power of the body, as ours is constituted; and it would be very unpopular with our officers, and otherwise injudicious, to abandon all this advantage, and the prestige which attends it. It is therefore to be hoped that a due proportion of such description of force may always be maintained as a cavalry of reserve; but strange as it may sound, that quality is of less general utility in the mixed services required in a campaign, than the characteristic of a light, active, hardy cavalry; such as would be better adapted to keep watch

round the camp, perform out-post duty, reconnoissances, escorts, orderlies, &c., &c.; bodies much more required for activity of legs than power of arms, and which would, as compared with others, produce the greatest force under the most trying circumstances of work, hardships, and deprivations.

The primary qualities demanded for this service are activity and a capability of performing a great deal of work, much of it occasionally at quick paces. Some of the fighting power of the men for a charge must be sacrificed to this object; and it is in that point that an impatient repugnance will probably be felt in the minds of our cavalry officers, justly proud of their achievements in this respect.

If we analyze the subject, it might be shown that, if absolutely necessary, this sacrifice might be carried to a very great extent, rather than forego the benefits of obtaining a very ample and brisk mode of watching the proceedings of an enemy, of effecting abundant and quick communication of orders and information, and of performing numerous duties of escorts, reconnoissances, and the collection of supplies, where opposition in force is rarely met with. An example of this is to be found in the Cossacks in the Russian service, who perform such duties, and who rarely attempt to enter into a conflict, unless with an overwhelming superiority on their side, either

from not being well prepared for it, or as part of their policy and system.

But we have every confidence that, under a spirited British organization, the sacrifice, though indispensable to a certain amount, need not extend to such a degree as to reduce the effective power of the men so as to force them into acts of apparent timidity—a result that would be repugnant to the feelings of Englishmen, and to which they would never submit.

A light sabre, a good revolver pistol, and, perhaps, in some corps, a lance in addition, with man and horse thoroughly trained, might render an individual a perfect match for one of our heavy men; it is found to be so with a good Oriental horseman, who is as a pigmy in appearance compared to the European trooper. In Egypt, in 1801, neither French nor British cavalry, as individuals, had a chance in a contest with a single Mameluke. The latter, however, were certainly the perfection of the Oriental system of cavalry.

The light horse, such as we propose, would, besides, be exercised to act together, and to manœuvre in compact order, so as to be respectable in an action against masses; the principle, however, with them should be, not to enter into conflicts for the purpose of obtaining some partial triumph, but only when an adequate object was to be gained. It is, in fact, essential to preserve the force as much as possible from

needless casualties by the enemy, as well as by care and attention given to its management.

We are strongly impressed with the correctness of these views; but we have great doubts whether they are or will be adopted by others, and more especially by our old cavalry officers, whose long-established opinions will probably be shocked at the idea of *any* British cavalry that shall not possess that superior power for which ours is notorious; and it is to be feared that any endeavour to introduce this new principle may be marred by a struggle gradually to enforce, under plausible arguments, modifications that will reduce the proposed qualities sought for. Should an attempt be made to introduce a force of this description, it can only succeed by being intrusted to officers well imbued with the full principles that form its basis, and with a determination to adhere strictly to the limits that shall be first defined for the character to be given to every part of it.

It may be for consideration whether the light cavalry here proposed might not be organized in some gradations of lightness, for different kinds of duties, or, at all events, for trial of the effect; but we are of opinion that in the end it would be found inconvenient not to have every component part of the proposed corps equally applicable to all the duties of light cavalry.

We come now to a difficulty under which our cavalry, as a whole, labor, that we are loth to

believe to be true, but which forces itself on our conviction, and that is, that the characteristic disposition of our countrymen is peculiarly unfavorable for the care of horses.

Amidst the brilliant qualities possessed by the British infantry soldier, he labors under one great disadvantage in the field; that is, a peculiar degree of helplessness, and a want of knowledge of the many ways by which a French soldier adds to his comforts, and assists in providing for his wants. This is doubly an evil with the cavalry, because it occasions the horse as well as the man to suffer; but this, we fear, is not the worst of it.

An Englishman has been declared proverbially to be the hardest horse master in the world, and we can scarcely venture to contradict it.

It is impossible to walk through the streets of London, particularly in hard times, without perceiving the little sympathy habitually felt by a man for his horse; it is rare to witness any symptoms of kindly feeling towards him; while neglect, blows, and abuse, commonly attend any incapacity there may be in the poor beast to fulfil the task required of him.

The splendid examples of high-conditioned horses, beautifully maintained and skilfully managed, are no proof of the injustice of this censure; the English make professionally first-rate grooms, and

when it becomes their interest for their welfare in life and for their professional character, and with every means at command, it would be an act of folly to indulge any such evil propensities; nor does the occasion offer much trial for temper, and therefore the disposition will not be shown. There are others who have charge of what is their own property, and will, from self-interest, spare the animal so far as to obtain the greatest possible amount of work from him; and there are, no doubt, very many actuated by just, and others by kindly feelings, who would never be guilty of harshness, but would at all times rather make their charge as happy and comfortable as circumstances would allow; but our conviction is, that these are exceptional cases.

Drunkenness, to which, unhappily, our countrymen are still prone, hardens and brutalizes the spirit, besides creating wants for means to indulge in it; and this has a great tendency to promote the evil propensity to which we refer.

The character of the people will follow it into the army; thus, the absolute control that is exercised while in quarters over the individual proceedings of the cavalry must necessarily be reduced in the field, where, in a thousand ways that cannot be defined, the acts of the man will tend to the welfare or injury of the horse, and the effect will then be shown by the falling off of the animals in a greater

degree than is absolutely necessary, or than would be the case did the men feel a disposition to make efforts for their preservation.

Every officer who has been on active service in hard seasons and periods must have witnessed with pain the dreadful falling off of the horses, owing chiefly to the hardships, fatigue, and deprivations they have to endure, and some may be inclined to assume that the evil is to be entirely attributed to those causes; but there is much reason to believe that it is greatly aggravated by the feelings to which we have adverted above.

In the first place, if they do exist as a national imperfection, as we have asserted, there can be no reason to expect that the disposition will suddenly change for the better, when every motive of self-indulgence leads to a temptation the other way; we would appeal, then, to those same officers, whether, under the circumstances, there is any appearance of kindly feeling towards the animals; —our own experience would say no! A good, steady soldier will certainly do more justice to his horse than a bad one; but this is the effect of discipline, and the laudable principle of a desire to do his duty, and rarely arises from natural feeling, and the result is very different in such cases from that due to the impulse of good nature; feeling will effect far more for the benefit and well-doing of the animal than the strictest observance of what mere duty demands. It would be great

injustice to our cavalry to impute this to anything but a natural infirmity, or to suppose that the officers and non-commissioned officers would not do their utmost to prevent it and its evil effects.

The impulse of which we here complain is, however, more strikingly displayed in the treatment of the baggage and provision horses and mules, which are more or less at the uncontrolled mercy of their immediate care-takers and drivers; and a few words with regard to them may be mentioned in illustration.

The cavalry are seldom so independent as not to be under some controlling eye to check any very positive unworthy acts; but the baggage animals following up an army are very much left to the tender mercies of their drivers; and when entirely so, they usually suffer greatly. Here, however, we may take account of the element of organization. Except for the officers' private baggage, the commissariat furnish all the animals of burden for the transport of provisions and stores; and as there is no permanent well-understood organization for that most important department, it has to be created on every occasion of active service, and must accordingly be very imperfect during the first campaigns. This somewhat difficult branch of the transport is therefore without the system and order peculiarly required in a service which must be so fluctuating and irregular in its operations; and the want of a

graduated scale of responsible superintendents, of ample strength to regulate its proceedings, leads to the management of the animals being left to the discretion of those who have not the qualities requisite for so important a trust.[1]

Thus the natural impulses of the men are apparent in the effects of the greater or less amount of control or organization: the animals in charge of those who are removed from the check of discipline (and these are unfortunately the great body) fall into a state of rapid deterioration and diminution, during any peculiar hardship; those belonging to the officers are the best looked after and cared for; while there is a medium class, namely, certain numbers that are transferred from the commissariat, and attached to other branches of the service for specific purposes—these are, at once, put under a surveillance that is more or less effective in proportion to the interest taken in them by the department to which they are allotted, and to whom they are considered a great treasure.

We can give a striking instance of the ad-

[1] The establishment of the Military Train will not remove, although it will mitigate, the evil alluded to; the regular train can never form more than a fractional part of the total transport required for an army of even moderate strength; a good, well-understood organization will be wanted to regulate all the additional means which must be collected in the country, and to see justice done, not only to the animals, but to the native drivers, whom it is a matter of deepest policy to retain, and can only be done by good treatment.

vantage of a very close and determined degree of attention to this interesting matter.

The winter of 1854, in the Crimea, was one of the most trying periods for the animals belonging to an army that could well be conceived: the season was very severe; all animals, except a favored few, were picketed in the open air, without enclosure, or even trees to afford partial shelter; forage was scarce, and only to be had by traversing eight or ten miles of deep mud and snow; in addition to this, it was a first campaign, and so adverse a state of things was not anticipated; and it may readily be conceived how the unfortunate animals fell to pieces—the face of the country, in fact, was covered with their carcases.

Before the winter began, the commissariat consigned thirty mules to the engineer department for its services these animals were actively employed, throughout the winter, in bringing up and conveying to and fro engineer stores for the siege, and occasionally provisions. They performed a vast amount of work; and at the end of the winter all were forthcoming and in tolerable working condition, except two, which had been stolen; and this was the result of watchfulness on the part of the officers, a studious selection of men of proper qualities for the charge, and a timely check to any tendency to sore backs, or the effects of over-work—that is, no assumed exi-

gency was permitted to induce them to sacrifice an animal to a last two or three days' extravagant and cruel exertion. This is not a singular instance of the advantage of having put the animals under those who really felt an interest in their preservation, and who could apply judicious means to the object.

It will at once occur to any one that these same influences and control should save the cavalry in a similar manner; and it might do so to some extent, but they are not so active nor so easy of operation with this branch of the service as with the others. Each part of the cavalry must perform the regulated duties, and at regulated periods; and it is not easy, if possible, so to apportion them in the regiment and among the men, as may be done in the case of the transport; indeed, the very circumstance of attempting to spare particular horses, and with them, of course, their riders, under certain conditions, might act as a premium on the neglect of the animal. There are also, perhaps, habitual modes of treatment that cannot be conveniently varied to meet different circumstances, and, from want of experience in the field, an inconvenience felt by every arm in the British service during the first campaigns, the officers may not be fully aware of methods by which the preservation of the horses may be so greatly promoted. A striking proof of what *may* be done by good

system and feeling was exhibited during the Peninsular war, and with great effect.

During the early periods the cavalry horses, when under any deprivation, fell into a state of habitual deterioration that did not create much surprise, until the troops of the King's German Legion (Hanoverians) joined the army, when it was found that their horses, under the same circumstances, were generally maintained in a state of efficiency. At length, at the period of the retreat from Burgos, when the work and hardships had been more considerable than usual, regiments of Hanoverians turned out hundreds in a state of tolerable efficiency, for tens that could be produced by the British regiments; and that this was the result of superior management was certain, because they were mounted on English horses that had been subjected to the same treatment in shelter, forage, &c., in England as the others: the greater hardiness of the horse could not, therefore, be brought forward as a plea in their favor.

The circumstance was so manifest that the British artillery and cavalry officers exerted their minds and energies on the subject, and effected subsequently a considerable improvement. Still, the Germans had one great advantage, in the moral character of the individuals, which was exhibited in a natural and habitual degree of affection for the horses: we have ourselves known

a German soldier, in hard times as regards forage, to buy bread for his horse with his own money; while there were too many instances at that period of the Englishman selling his forage to purchase liquor. In more recent times, it did not appear that the French, in the Crimean winter, lost so great a proportion of their animals as the British, nor that their cavalry was so completely prostrated. The whole of that description of force is deeply affected by this disadvantage; but it will tell peculiarly on the light cavalry, whose want we so much deplore; for the very nature of its services will occasion the horse to be more dependent on the individual rider for care, attention, and for sparing him to the utmost that the execution of his duties will allow.

With regard to the British cavalry in general, it may be doubted whether a fit saddle may not be introduced, of a lighter nature than the one now used, without inconvenience to man or horse. The style of riding, of bitting, and of breaking in our horses, has been criticised by foreign officers; but as the system is maintained on conviction, the effect of any alteration on those points may at least be considered doubtful.

On the whole, the matters here adverted to we believe to be well worthy of consideration.

It is needless to devise remedies and improvements until the data on which they are demanded shall be fully agreed to and defined.

THE EDUCATIONAL TEST FOR THE ARMY.[1]

The British are decidedly not a military people; and during a peace of nearly 40 years' duration, they most willingly allowed many very important military institutions to degenerate into a very low condition ; indeed, the only point in which the British army remained fully efficient—and that, fortunately, the most essential—was the military condition and qualifications of the troops, so far as depended on the organization and perfection of each regiment. Parsimony, as regarded military establishments, was the order of the day; and the great economists seemed to have taken up, *literally*, the saying of the great general, who when asked what were the three principal requisites for carrying on war successfully, said that "the first was money—the second money—and the third money!" "In like manner," said the economists, "save your expenditure, and when the day of trial comes, you will have wealth, the important ingredient to enable you to meet it." It has sometimes been said triumphantly, "When did the House of Commons ever refuse supplies for anything that was shown to be useful?" To which it may be replied, "Perhaps not often ; but why? because Government, al-

[1] Part of this has been published in *Blackwood's Magazine*, and part of it in a pamphlet entitled *Army Reform*.—EDITOR.

though persuaded of the propriety of certain items of outlay, gave, as a reason for not proposing them, that they knew the House would not consent to them."

The consequence was that, at the commencement of the Crimean war, that which has always been the case before again occurred, namely, that no department could by possibility be in an efficient condition for its duties. They could not be *improvisés* at once; hence, the officers who directed them were charged with being imbeciles; young blood (it was said) must be brought forward to regulate what was declared to be beyond their comprehension; and it was considered still better if the men so introduced could be parties brought up to any other profession; it was believed that such men would be free from "military prejudice and bigotry," which became the popular terms to designate experience. To these new-comers, however, be it understood, was given time, and all the necessary means of which the others had been deprived.

Everybody is supposed to be a judge of military matters; and there has been thought to be so little of an art in war, that men, brought up to any other profession, have been considered to know more than those who had passed their whole life in the service. No artillery officer could be so good a judge of the requisites for a gun as an

iron founder, and it was impossible for a military engineer to be at all aware of the most useful properties for a fortification. Thus, quackery has raised its head, and, by high sounding pretensions, has gained a great amount of popularity.

The main cause of our recent shortcomings was that, contrary to the warning of the late Duke of Wellington, we engaged actively in an arduous war on peace establishments, and those of the low order that are habitually maintained in England; and instead of condemning every officer employed in it, we ought to give them credit for having done so much as they did. It will be observed, that every element for censure may be traced to that one source; and it is most unjust to visit the consequences of deficient establishments on the heads of the unhappy individuals who happened to be at the time in immediate charge.

Without searching for particulars, some ground for supposing that the great defects which have raised such strong animadversions were beyond immediate control, might have suggested itself from the extraordinary fact, that not a single officer in early command of army, fleet, or of any department connected with the army, but has been reprobated in the most contemptuous terms; men who had served with reputation previously, and many of whom had raised themselves to their stations by their own merits—*all, without ex-*

ception, were condemned. It can hardly be supposed that corruption had arrived at such a pitch that *every* place was filled entirely without reference to capability, and that the effect should have been unobserved in *every* department, until this fatal moment of action made it manifest.

The erroneous reasoning of making the *persons* employed responsible for every evil of *system* has naturally led to the persuasion that there is something radically defective in the composition of the body of our officers.

We will admit that many cases of hardship and of favoritism may be pointed out, and of advantages given to men possessing interest and means, that are not on principle defensible, and which it would be praiseworthy to endeavour to have amended—although we doubt whether, practically, we can ever attain such Utopian perfection as is advocated, and whether the imperfections of human nature will not occasion similar evils to arise, although in other shapes, after any change; but we absolutely deny that any results of the late war have exhibited, in the conduct of the bulk of the officers, proofs of a necessity for any change whatever. They have displayed activity, courage, intelligence, and a due knowledge of their profession, only wanting in the experience which actual service alone can give. The troops were avowedly in a very high

state of discipline and exercise, which could not be the case if the officers were defective in quality. And yet, without bringing forward any particular cases against them, but merely vague attacks upon the whole *en masse*, various are the demands for their improvement—some of them harmless, and even advantageous, if kept within reasonable bounds; but others positively mischievous.

There is a great rage at present for formal examinations in learning, as a necessary test of qualification for all public offices; applicants for commissions in the army are not exempt.

This great popular movement for an educational test for the army is uncalled for, delusive, and mischievous; it is the application of proof of an erroneous qualification.

Officers entering the army are as well educated as the mass of other persons of the same classes in life; it certainly is not the habit, in a family, to say that such a son's education may be neglected, because he is going into the army. If, therefore, the nation is subject to the censure that education is inferior, and ought to be raised, let every exertion be made to effect so great a social improvement; but it is delusive and very embarrassing to fix upon peculiar standards of acquirements exclusively for those who are to enter into the public service—standards, after all, that are not of a character to have much useful

effect on the improvement of education generally, and are not required for the proper execution of the duties with which they are to be charged; and thus, in order to enforce a scale of qualifications which are *not* requisite, the state will run the risk of losing the service of those who possess the very qualifications which *are* requisite.

The necessary attributes for a good regimental officer are a reasonable amount of bodily power and activity, a good constitution, energy of character, an ordinary degree of intelligence, and a disposition that leads to attention in learning his duties, and a conscientious determination to fulfil them strictly and in every particular.

It would not be easy to show how the scholastic acquirements, which (except the examination by a surgeon) are to be made the sole test of qualification, can obtain for the country any better services from him whatever. The duties are, in fact, essentially practical—there is little to be acquired in books to assist; a certain amount of skill is required in the field, but it is gained by experience, observation, and intelligence. If high education (for the rising demands amount to that) be so necessary for an officer, the reflection naturally presents itself, how, under such circumstances, promotion from the ranks is to be justified.

At a public school will be found one set of boys

who apply to their studies, and make the greater progress in them; another set take to cricket, boating, fives, swimming, &c. Now, of the two, I should decidedly prefer the latter, as much more likely to make good officers; but they are to be absolutely rejected, and for ever, unless they can come up to the mark in the other matters, which are of no absolute use to them in their profession.

It may be said, perhaps, that they may be united: if so, all the better; but in an union of qualities, why select that which is least necessary, even though one that it is desirable to encourage, as the sole requisite for the appointment? With every respect for literary and scientific acquirements, and an entire concurrence in the advantage of their general diffusion, we have a right to consider their positive utility for the military profession, in thus forcing them as a *sine qua non.*

Of what useful application to a regimental officer will be any minute knowledge of history, being able to read the classics, and even much knowledge of modern foreign languages, although some acquaintance with the latter will doubtless be of advantage to him. And so of geography, it would be of little use to him to be able to answer correctly "the names of the principal rivers in Nepaul," or "in what county of Ireland was the town of Ballinafad." There is no positive reason

why an officer should not be able to write a treatise on astronomy; but it is not necessary, neither are the other demanded acquirements. Standing on his hind legs is a very pretty accomplishment for a dog; but a sportsman, wanting to buy a pointer for the shooting season, would scarcely make that the test of his qualifications, even although told that it did not follow but that he might be a good sporting dog into the bargain.

To extend these examinations to the higher ranks, even to that of captain, as the principal test for promotion, would be to keep men in schoolboy trammels up to the age of between 30 and 40. It would be intolerable, and would destroy emulation in the real qualities for a good officer and soldier.

So much for the necessity of these scholastic attainments, as regards the requisites for the service; I would suggest in addition, however, that the examination test system is erroneous in principle, of small value, if requiring little, and if requiring much, it gives rise to a system of cramming, and thus defeats the very end it has in view, of encouraging the attainment of general knowledge and information; besides being a hardship to the individual, it may lose to the public many admirable candidates for commissions. A competitive examination, to fill up any given number of vacancies, may lead to great injustice;

for a candidate may be rejected, when in competition with one set, who might be number one with another.

If the examination for obtaining a commission is to be very light, it is hardly necessary to go through a degrading form for a fanciful qualification; if to be somewhat severe, and for certain formal acquirements of a distinct character, it will cause the exclusion of many fine young men, who may be backward, either from want of precocity or of industry at an early period, but who might be eminently otherwise in after life, a case that is most common.

By being somewhat severe, is meant what exceeds purely elementary knowledge on a low scale, and will require, in young men, a peculiar amount of effort, in which many may fail. It is said that what is demanded would be useful for all professions: granted; but still, it is attempting to force on the public a peculiar class education, when many might prefer others.

The precise nature of the required knowledge will demand peculiar studies, and peculiar institutions for learning; for it is not to be expected that all are to be modelled on these precise systems. Therefore, general schools must be avoided, and general studies and general improvement of the intellect, in favor of certain mechanical efforts, by which a showing of especial

acquirements is to be forced into the brain of the candidates, for a temporary purpose.

Thus, to translate a book in Latin, as well as in one modern language, to answer questions in detail in history and geography, with good writing, spelling, arithmetic, and a certain amount of mathematics, is too much to require from every one at the age of 16 or 18; much of it, such as history and geography, &c., to be well learned, ought to be instilled gradually and insensibly, by the progress of reading, and not learned distinctly and hastily, by rote.

These examinations, at the age of 18, will afford no proof of general intelligence, but of some peculiar early quality of imbibing a load of especial defined acquirements by rote, and, perhaps, the accidental circumstance of the teacher or school system having been precisely suited to the temperament and disposition of the individual. A broad distinction may be drawn between studying for real information, and studying for passing an examination.

To fix a full standard to so many objects will tend to narrow the ideas, by attaching them imperatively on studies of all in equal degree, while some may be uncongenial, and thus give a distaste for those particulars; learning, instead of being encouraged, will be entirely forced and mechanical.

The best education for boys is what is essentially elementary; in fact, to supply them with the tools by which knowledge is subsequently to be attained. Let it be developed beyond, if the individual be sufficiently precocious and willing; but, by forcing it imperatively on all, it will become evanescent and distasteful.

The knowledge that is much forced in early days will be continued by most of those whose progress in life necessarily depends upon it; but where it may be subsequently voluntary, it will most probably be abandoned, under a feeling of a sort of horror: a few after-years' repose may, perhaps, lead to a return of it; but the first unfavorable impression is to be deprecated.

Where education and the necessary coercion have been judicious, (the most severe being that which terminates in formal examinations on a number of precise subjects,) a young man is very likely, with opportunities and encouragement, to apply, at a much more favorable age, of his own free will, first to studies suiting his taste, and that will be most useful to him. This will lead him gradually to further studies, and is the only real process for obtaining valuable information.

It will be said, by the advocates for the examination test, that the amount will not be in the excess here described; but only to the degree that any youth of tolerable intellect and applica-

tion, and with a reasonable education, may be well equal to. That is then the most important question, and on which there will be differences of opinion; for I cannot but consider what has been promulgated as desirable, quite in excess, and on a mistaken system.

The best education for an officer would be decidedly that which finishes at a public military academy, such as Woolwich, Sandhurst, or Addiscombe, improved, from time to time, to the greatest degree of which it is susceptible. Boys would receive their general education at general establishments, till from 16 to 18 years of age; and then, after a light examination as to some very elementary essentials, be admitted to the military academy, where the studies would partake more especially of those branches most likely to be of interest and value professionally. They would there go through all the drudgery of the drill, and the first elements of military organization, habits, and exercises; their stay might be for not less than one, nor exceeding two years, to be advanced according to their progress; but a minimum of learning, and that on a low scale, with good conduct, to be sufficient for a commission, at the end of the two years. Added to this, should be what would be the most valuable of all, the establishment of good institutions at every leading military station, for the encouragement of

the pursuit of knowledge by officers and men, with minor means for the same in every regiment.

I believe that the army would, by that mode, become far better instructed in general, than by a violent system of coercion, and what can only be termed one of pains and penalties. The real object, and one that every one must anxiously desire, is to obtain, among officers of the army, in common with all classes, the greatest possible amount of knowledge and information; which, it is maintained, will not be by the system at present in so much favor, while it will act very injuriously in other respects.

With regard to officers for the artillery and engineers, an amount of acquired scientific knowledge is absolutely necessary, particularly to the engineers, for the performance of their duties, which will always prove a sufficient motive to induce them to enter upon, and to persevere in, the necessary studies, by which alone they can hope to gain reputation; but with them also the examinations should be such as to be evidence of lasting and of the most useful acquirements, and not such as are gained by a temporary effort of memory.

Of the staff, the adjutant generals require some amount of literary attainment; but their chief qualification is, to be thorough good practical soldiers. The *aides-de-camp* and brigade majors require little more than regimental officers. The

quarter-master generals alone should have a scientific knowledge somewhat on a par with the engineer, without any absolute necessity, however, for what appertains peculiarly to the professional engineering.

Among the great mass of the army, there will always be found officers qualified for the staff; and it would be most injudicious to follow the practice which, it is believed, prevails among the continental armies, of having a corps peculiarly of staff, rising as such from their first commissions, and exclusively filling that situation. You may, by that means secure a body having a given amount of scientific qualifications; but they may be wanting in what is of even far more consequence, namely, that they should be also superior regimental officers, noted for energy, zeal, and soldier-like qualities; and by the habit of selecting them from the bulk of the army, where you will always find the peculiar qualifications added to others, a stimulus and encouragement is given for the study and the prosecution of knowledge among the officers generally.

General Mack is an instance of the insufficiency of the highest theoretical knowledge in war. He was celebrated for what was thought the perfection of a staff officer, in the details of their theoretical duties; and the highest expectations were formed of his qualities for a general in consequence; and no one made so great a failure, in opposition to the rough soldiers of energy and experience, in the field.

ON OFFICERS THROWING RESPONSIBILITY UPON OTHERS.[1]

There is a certain pettish way of enlarging upon difficulties, that unfortunately is common to many officers of weak, timid, or inactive dispositions, which cannot be too strongly reprehended. If everything that can be desired for executing their duties is not put as it were into their mouths, or if the commanding officer does not give up his whole time to their business, and enter into demands and remonstrances with higher powers for forwarding it, such as perhaps would be very indelicate, they will cry out on want of support, and probably add the unmilitary threat that they cannot be responsible. Such persons are not easily satisfied as to means,—they do not demand such as can be given them without injuring other branches of the service, but frequently what they know, and inwardly are rejoiced at thinking, are impossible.

There is no excuse for this manner in officers of any experience. Young men, who have not been much on service, will sometimes get into such an habit, from diffidence of executing their duty well, or from the common turn at such an age to argument and finding fault. Far from gaining reputation for zeal, their superiors have little dependence on such persons, knowing that they will be full of difficulties: but will seek

[1] From notes taken during the Peninsular war.—Editor.

for those officers who demand only what they think will forward the service with moderation, or at all events, undertake it, under whatever circumstances, with ardour; and in very strong minds, even with confidence, though with very imperfect means. —Anxious to forward the undertaking, to gain reputation for themselves, and feeling a pride in the credit of the service, their reflections are how to execute it in the best possible manner with the means they have, and whether they fail from unavoidable circumstances or from the faults of others—confident of their own feelings and exertions, they are not anxious about the consequence to themselves in case of failure. Their superior officers are well aware of their difficulties and exertions, and though they fail twenty times, will give them full credit for their attempts, knowing that were success possible, it is under such men that it would be obtained.

"LINE," *versus* "COLUMN." [1]

The British troops have a great advantage in their present system of engaging in ranks of two deep only, as by that formation they present a much more extended front; the argument against this practice is, that the weight of a column, or of that formation which has the greatest depth of men, must bear down the thinner. This is perfectly

[1] From notes taken during the Peninsular war.—EDITOR.

true in theory, where we reason upon two bodies of men of equal relative power coming in contact; but if allowance is made for those moral causes or effects on the mind, which have scarcely, in any instance, allowed of the bayonets to cross, it will be found that this argument is nought; if the men who are four or more deep have not the stamina and resolution of the two deep, it is not their reflection that they are the heaviest and strongest body which will make them maintain their ground; but if the front rank waver, each man, even the most resolute, is afraid his neighbour will desert him, and the whole will give way without trying their strength.

The moral effect on men in a state of excitement, such as in a time of action, makes them capable of extraordinary efforts. I have known precipices passed and obstacles overcome, by troops under all the disadvantages of a load of arms and accoutrements, which were considered by the peasantry of the country under their ordinary habits, to be impracticable; and in the same way, a superior moral energy will enable the thin to overcome the more dense formation; and it is clear that if the thin has an equal power, it affords less *prise* to the fire of the enemy, particularly that of the artillery, and can make a greater number of attacks in succession, with an equal number of men.

But an advance in action, in a long thin forma-

tion, requires that cool phlegmatic kind of courage which we believe to be peculiarly inherent in British soldiers; to preserve the proper order, the progress must be slow till the last closing rush.

Other troops, such as the French for instance, will, with the greatest gallantry, make a rapid advance upon their enemy; but I doubt much if any others than our own will, as it were, coolly walk up to face him; and that is absolutely necessary with the thin formation, and for this reason, I believe that other armies will find it difficult to imitate us in the practice.

It is a somewhat curious fact, that Marshal Saxe attributes the success of the British troops in certain attacks, in the middle of the last century, to their attacking in column against a line; while of late our success has been attributed to adopting the precisely opposite practice.

Great stress is laid by authors on the almost impossibility of getting troops to withstand an attack as firmly as in the case of defending entrenchments, in consequence of the difference of effect which moving on to attack and standing still to defend has on men's spirits; but this did not hold good with the British army in Egypt, on the 21st of March, when the enemy made a most vigorous attack on the reserve under the command of General Moore, who completely repulsed them; one regiment, the 28th, nobly stood its ground, by facing to the front and rear when attacked on both sides.

When it could be done, however, our troops have acted upon a still better plan, which is not to await the attack, but, when they find the enemy approaching very near, in the bold way in which they are accustomed to make their first attack, and by which they have beat all other troops, to charge them with the bayonet, a mode of proceeding which they never can withstand. The French are certainly not without faults in their method of fighting their troops, when opposed by men of proper firmness, as in the instance of drawing up their men four deep, or in column, without always considering circumstances; if they would produce much effect by their fire, four deep will certainly make a great noise in a short space, but cannot produce proportionate effect; the column, of course, scarce any: and at Vimiera, they advanced in front of artillery in columns, which did them prodigious injury.

An attacking army, during its advance, must naturally lose many more men, and be reduced to much more confusion, than the one that stands firm; if, therefore, the latter advances to the charge at the proper moment, when the other has arrived at a short distance from them, and continues it with determination, the event must be certain.

The British officers reject the arbitrary theories laid down, of men not standing this or that mode of attack, and trusting to the spirit of their men which never fails, make it their principal ob-

ject to come in contact with the enemy, and face and fight him whether he comes on the front, flank, or rear. They seem to have the opinion of Frederick the Great, who, in his instructions to his generals, says, "we may do with safety with our troops what would be determined rashness in others to attempt." His principle was likewise never to wait an attack. I fear the powers on the Continent adhere too much to old theories; and the French, by their superior ability in disposing troops, knowledge of the country, rapidity of movement, and general unanimity and concert which pervades their whole force, gain great advantages with much less contest than they ought to have.

REMARKS ON CARNOT.[1]

Carnot's work *De la Défense des Places Fortes* has made much noise in the military world; and as its effects are likely to be of importance by the general idea adopted by military men regarding it, which is no less than that some grand discovery is made to prolong the defence of places to a great degree, it will be worth while examining how far such opinions are correct.

Carnot is a man of considerable abilities. He was, before the Revolution, an officer of engineers, when

[1] This paper was given to Sir John Jones, and published by him in the notes of his work on the *Sieges in the Peninsula*.—EDITOR.

he wrote some works on fortification, and projected new systems, in which, by-the-bye, he did not show that confidence in existing fortresses that he does in his present work.

A few years ago, when nearly all the important fortresses in Europe were in the hands of the French, he was employed by Napoleon to write a popular work on their defence, that should stimulate the governors and garrisons to maintain them to the utmost extent.

This he has executed with much ingenuity and address; and to the additional advantage of persuading cursory readers of all countries (for we all look to the French authors as oracles of military science) that the strength of fortresses has been hitherto overlooked, and that they are capable of considerably greater resistance than has been before conceived, though without advancing any new idea or improvement whatever, except one, the merits of which shall be presently discussed.

The work is written in the true spirit of a controversialist, turning and twisting the subject in every way to his own side of the argument, in a manner unjustifiable in treating on any science, and only worthy of a pamphlet to answer the purpose of the day, in which light I think this book must be considered.

Its reputation has, with us, been not a little increased by the apparently corroborating evidence of the late bloody sieges in the Peninsula, and the

necessity of carrying every town by assault, when the two or three breaches in the body of the place, it was conceived, would in old times have induced their surrender without the ceremony of such hard actions. It will be found however on examination, that these assaults have been nearly all perfectly *hors de règle*, and necessarily premature, from want of time or means which could not be given to the occasion, as well as from the faultiness of some of our military establishments most necessary to the reduction of fortified posts.

The art of attack and defence, and the superiority of the former, is precisely where it was before this celebrated work was published; and if it has the effect of encouraging in some degree French garrisons to be rash, it is for us and the other enemies of France who may have sieges to undertake, to bring them to their senses, by adopting in the first instances increased means and vigour.

So very inferior is the art of defence in modern warfare to that of attack, that it may be said boldly that there has been no celebrated defence since the time of Vauban, where the means of the besieging army have not been very inferior to the object; and though the writers and panegyrists of such defences have kept that circumstance out of sight, the particulars of the events that occur betray it in nearly every instance. A few exceptions, where any gross blunders or unlooked-

for accidents have occurred, are arguments for either side.

The account of every brilliant defence from history introduced in Carnot's book is artful but fallacious, almost every other siege since the world began is against him ; and taking the account of any war, for one such defence will be found fifty bad ones, or leading to principles contrary to his.

If the business of a vigorous defence is so brilliant, so easy, and even so safe, as he would make us believe, we are surprised how it would ever be necessary to enforce its propriety so very strongly ; but when we call to recollection the various instances of men of acknowledged bravery, for the first time in their lives, showing timidity in the defence of a fortress ; when we find the headstrong Charles XII., after expressing his astonishment how any good place could be taken, himself forced to fly in an open boat by night from so strong a one as Stralsund to be saved from the impending fall of that town, we must decide that Carnot has either not stated the *pro* and *con* with fairness, or that he has discovered new means that should very much prolong their resistance.

This latter idea seems to have taken possession of many officers' minds, either from reading the work cursorily, and taking everything produced for granted, without considering the contrary side of the argument ; or from the more frequent reason, of now for the first time reflecting on that branch

of military knowledge, and pleased with gaining an insight into it without the formality of going through the elementary and abstruse points, they have not the power of correcting their judgment, but become absolutely at the mercy of the author, and go with him to the extent he desires, as long as he makes his argument plausible.

But in analyzing his work in search of the improvements, where has he proposed any simple method of remedying the well-known defects of the existing fortifications? or shown any practicable and effectual mode of warding off the overwhelming effects of enfilade and concentrated fire?

He talks of mines as if his studies were only advanced to the works of the last century, where a countermined glacis to a small fort was esteemed sufficient to detain the besieger two months: not a word escapes him of Mouze's experiments and Gillot's application of them to reduce the most complicated systems of countermines in a few days. His defence of the breaches is as deceitful; his advantage of height, and showing the same front as the enemy;—can he show the same *depth* as in the columns that attack in succession? and what is the state of his defending troops, who crouching in disorder from the heavy fire on them, in the confined space within the breach, are suddenly called to the alert, and in half a minute meet the mass of assailants face to face, with no sheltering

walls nor ditches, which they know to have been their only previous protection?

He even insinuates that the moral effect of their relative situation is in favor of the besieged; but that is most preposterous, for it is notorious how much the drooping spirits of a besieged garrison require to be supported by frequent promises, whether true or false, of certain relief.

If the governor has really a good entrenchment, which Carnot says he ought to have, the bastion will act the part of an outwork, and be taken in the same way, step by step. But what besieged place ever neglected to commence a retrenchment in the bastions attacked, and what is the usual state of such entrenchments after the greatest exertions, when the siege draws to a close?—Ninety-nine times out of a hundred, they are totally indefensible.

But his works to be carried on during the siege are on a scale to employ the whole garrison; his sorties the same; his movement and employment of the artillery for a large number, &c., &c.; when, in fact, their strength usually can allow of little more than affording proper reliefs to the standing guards and duties; but all this must be done, and no allowance made for casualties and sick towards the latter end of the siege, when the real defence, as he says, begins; then, when you will find them, in fact, blocking up their gates,

cutting away their ramps, and trusting their communications to a few ladders, he talks of his formidable sorties, and other violent exertions.

Notwithstanding Carnot's abuse, Cormontaigne's comparisons of the power of resistance of fortresses are perfectly fair; and if he makes no allowance for the impediments to the works from sorties, it is because he allows sufficient time in their construction, particularly the nearer ones, not to fear them; for if the approaches and parallels are carefully perfected for defence, and the besiegers possess a proper force and arrangement in the trenches, what sortie can take place but to the detriment of the garrison?

His grand project and invention, however, that is to make any place impregnable, is his vertical fire.

The principle is to increase it to such an extent, during the latter part of the siege, while the besiegers are in the third parallel, and in front of it, as shall effectually kill or wound *them all!* And what is really surprising, he says it is an idea that he has had for years, but would not divulge before, for fear of its adoption by the enemies of France.

His argument is thus:—

The third parallel he reckons at 100 yards (50 toises) from the salient angles of the bastion, and its extent something longer than 360 yards; he allows, therefore, comprised between the third

parallel and the place, in round numbers, 60,000 square yards, on which the besieger has to carry on his works, at the lowest calculation, for ten days.

The garrison being 4,000, the guard of the trenches must be 3,000; these men, at one square foot each, will cover a 180th part of the whole space; therefore, one vertical shot out of every 180 must hit its bird. This, he says, is the minimum of its effect, because the men are not uniformly dispersed, but collected in points where the fire can also be concentrated; and men will take up much more space than one foot in most of the positions they must be in, &c.

"Place six 13-inch mortars *only* on the front attacked, two in each salient angle of the two bastions and ravelin, well traversed and with a bomb-proof, so as nothing can touch them nor stop their practice."

Each of these will be loaded with small balls or pieces of iron of a quarter of a pound each; 600 will be its charge, equal to the weight of its shell; the six mortars will throw, therefore, 3,600 balls, and as before, at one in 180, will put *hors de combat* 20 men.

Each mortar firing 100 rounds per day, the destruction will be 2,000 men, or in the ten days, 20,000;—the whole besieging army!

If the garrison is stronger, suppose of 10,000, the besieger must be stronger in the trenches, and will lose 50,000 men!

This calculation he insists, is much less than he ought to make it, as ten days is too little time to give from the third parallel to the attack of the breaches, and the mortars might be more in number and fire much quicker.

He also recommends musketry being fired at an elevation of 45° at the trenches!

This is quite the project of an enthusiast, which would not in any one point be borne out in practice.

In the first place, he pens the whole of the guard of the trenches like cattle in the third parallel and in advance of it, on purpose to kill them, however little the work might be in front of it, as for instance, during the first period of his ten days; but the besieger, who will not see the necessity of having a very large proportion of his force at points where, from his fire, the garrison *cannot* make strong sorties, will have the remainder in reserve, to repulse the sorties on his flanks, from the collateral fronts, whence they *may* be made in force.

2ndly. He would clear his own covert way and ditches, for it is well known how this kind of weapon scatters.

3rdly. His temporary bomb-proofs, made from experiments of one or two shells fired on them, would soon be ruined by the shower of shells and ricochet shot fired on the front attacked.

4thly. It is only increasing stone mortars, and of a bad quality.

And lastly,—such balls of a quarter of a pound weight, fired with very small charges at 45° elevation, (as he directs and as they must be,) would scarcely hurt a man if they hit him.

To concentrate such fire, as he suggests, would be impossible; it would scatter over the whole surface, from very near the mortar to the range of the farthest ball.

If he had proposed to increase the usual vertical fire of common and stone mortars, no one could object that they would not be a considerable advantage, but there would be no great ingenuity in the idea, though I cannot but think they would be infinitely more effective than his wild project for increasing their powers.

The musketry fired in the same way at 45° elevation, would certainly have no manner of effect.

On some such principles the French artillery in St. Sebastian's, during the late siege, introduced musket balls into large shells which were burst in the air, above the trenches, without any effect whatever.

Carnot has confined his example of celebrated defences in modern warfare nearly entirely to places garrisoned by Frenchmen, otherwise he might have taken what are commonly esteemed strong arguments in his favor from the late defences in the Peninsula by the Spaniards. It has been however with them as with the Turks; a

people whose military discipline and establishments have been ruined, so as not to be able to face their enemy in the field, still find themselves capable of an exertion behind the ramparts of a fortified place, and it has been in great measure from the large means thrown into them, which an army who could keep the field would never spare, that has enabled them to astonish the world with those brilliant defences. But these I cannot but conceive are much overrated when we consider the trifling means brought by the French against them, where, by superiority of discipline and art, they have reduced places containing garrisons very nearly as strong, sometimes even stronger, than the besieging force. There were certainly not much less than 30,000 troops in Saragossa; and 9,000 in Badajoz surrendered to 11,000 besiegers; this however is not meant to call in question the spirit of the Spaniards as a people; their danger was brought on by a weak government; their escape has been chiefly owing to their own gallant perseverance in spite of every obstacle.

On the whole, Carnot's book, as it stimulates the honor of a besieged garrison, and enumerates in a pithy and agreeable form all the old projects that may be put in practice to prolong their defence, may have its use, particularly if a place is attacked with petty means; but if attacked by suitable force and in proper form, no operation in war can be so certain of success as a siege, and

then will the garrison, who may have buoyed themselves up with his high ideas of glory, find how little their utmost exertions can lead to such brilliant results, and will execrate the author who thus leads them to unmerited disgrace.

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SEP 19 1982

REC. CIR. SEP 20 '82

UNIVERSITY OF CALIFORNIA, BERKELEY
FORM NO. DD6, 60m, 12/80 BERKELEY, CA 94720

YC02551